Solution Manual for Basic College Mathematics 8th Edition by Tobey Jr., Slater, Blair and Crawford ISBN 0134142438 9780134142432

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Chapter 2

2.1 Exercises

In a fraction, the numerator tells the number of parts we are interested in.

81. Answers may vary. An example is: I was late 3 out of 5 times last week. I was late $\frac{3}{5}$ of the time.

1. The number on the top, 8, is the numerator, and the number on the bottom, 13, is the denominator.

2. The number on the top, 5, is the numerator, and the number on the bottom, 16, is the denominator.

3. The number on the top, 1, is the numerator, and the number on the bottom, 19, is the denominator.

4. One out of two equal parts is shaded. The fraction is $\frac{1}{2}$.

6. Three out of ten equal parts are shaded. The fraction is $\frac{3}{}$.

7. Two out of three equal parts are shaded. The fraction is $\frac{2}{}$.

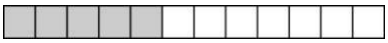
10. Five out of nine circles are shaded. The fraction is $\frac{5}{9}$.

1. Seven out of twelve rectangles are shaded. The 7 fraction is $\frac{}{12}$.

= Twelve out of fifteen circles are shaded. The fraction is $\frac{12}{15}$.

4. $\frac{3}{7}$; divide a rectangular bar into 7 equal parts. Then shade 3 parts.

1 $12\frac{5}{}$; divide a rectangular bar into 12 equal

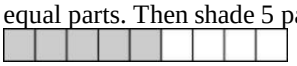


1 Three out of eight equal parts are shaded. The $\frac{3}{}$ fraction is .

parts. Then shade 5 parts.

5

6. 9 ; divide a rectangular bar into 9 equal parts. Then shade 5 parts.



1 sales tax = 7
total price 98

7. amount used to repay
= 48 total
earnings 167

18 18

8

1 One out of four equal parts is shaded.

The fraction is $\frac{1}{4}$.

8. Four out of eleven equal parts are shaded. The fraction is $\frac{4}{11}$.

11. One out of eight equal parts is shaded. The fraction is $\frac{1}{8}$.

42. $\frac{\text{puppies or adult dogs}}{\text{total}} = \frac{12+25}{37+18+24} = \frac{37}{79}$

44. $\frac{\text{apartments in suburbs}}{\text{animals}} = \frac{223}{12+25+14+31} = \frac{223}{82}$

46. total apartments $= 134+223+87+113$

$= \frac{223}{557}$

48. a. $\frac{\text{two or more}}{\text{total}} = \frac{213+56}{154+213+56+340} = \frac{269}{763}$

b. one or more 154 + 213 + = 433 − 56

total 763 763

12. We cannot do it. Division by zero is undefined.

Cumulative Review

13.
18
27
34
16
125
21
241

2
56, 203
7 42,987

13, 216

18. 3178

4. 46
19 068

6. 12
146,188

1258 R 4
8. 24 30,196
24

1
4 8
12. 39

14. 20
196

192
4

Classroom Quiz 2.1

16. Five out of eight equal parts are shaded.
The fraction is $\frac{5}{8}$.

18. number who did not drive motorcycles

total number of students
$= \frac{5 + 10 + 17}{3 + 5 + 10 + 17}$
$= \frac{32}{35}$

2.2 Exercises

20. A prime number is a whole number greater than 1 that cannot be evenly divided except by itself and 1.

22. Every composite number can be written in exactly one way as a product of prime numbers.

24. $\frac{23}{135} = \frac{46}{270}$; answers may vary.

28. $21 = 3 \times 7$

30. $32 = 2 \times 16 = 2 \times 4 \times 4 = 2 \times 2 \times 2 \times 2 \times 2 = 2^5$

32. $66 = 6 \times 11 = 2 \times 3 \times 11$

34. $81 = 9 \times 9 = 3 \times 3 \times 3 \times 3 = 3^4$

36. $42 = 6 \times 7 = 2 \times 3 \times 7$

38. $48 = 4 \times 12$
$2 \times 2 \times 2 \times 6$
$2 \times 2 \times 2 \times 2 \times 3$
$2^4 \times 3$

41. $125 = 5 \times 25 = 5 \times 5 \times 5 = 5^3$

42. $99 = 9 \times 11 = 3^2 \times 11$

44. $135 = 27 \times 5 = 3^3 \times 5$

46. $216 = 8 \times 27 = 2^3 \times 3^3$

48. $\frac{\text{number of fixed-rate mortgages}}{\text{total number of mortgages}} = \frac{213}{388}$

50. 31 is prime.

54. $51=3\times17$

10 71 is prime.

56. $91=7\times13$

1 97 is prime.

38.$119=7\times 17$

1 95=5× 19

58. 143=11× 13

1 $\frac{16}{24} = \frac{16\div 8}{24\div 8} \frac{2}{3}$

60. $\frac{28}{49} = \frac{28\div 7}{49\div 7} \frac{=4}{7}$

1 $\frac{45}{75} = \frac{45\div 15}{75\div 15} = \frac{3}{5}$

1 $\frac{110}{11} = \frac{110\ \div 10}{140\ \ 140\ \div 10} = \frac{}{14}$

62. $\frac{7}{21} = \frac{7\times 1}{7\times 33} = \frac{1}{33}$

54. $\frac{42}{56} = \frac{2\times 3\times 7}{2\times 2\times 2\times 7} \frac{3}{4}$

64. $\frac{19}{19} = \frac{5\times 13}{7\times 137} \frac{5}{}$

20 $\frac{42}{70} = \frac{2\times\ 3\times\ 7}{2\times 5\times 7} = \frac{}{5}$

7 $\frac{35}{90} = \frac{5\times 7}{5\times 18} = \frac{7}{18}$

38 $\frac{72}{132} = \frac{72\div 12}{132\ \div 12} = \frac{6}{11}$

3 $\frac{125}{200} = \frac{25\ \times}{25\times 8} \frac{5}{8} = \frac{5}{8}$

15 $\frac{2\times 100}{3\times 100} \frac{2}{3} =$

120 $\frac{210}{} = \frac{30\times 7}{30\times 13} = \frac{7}{13}$

1 $\frac{10}{2}$ _

72. $\frac{24}{7} \quad \frac{15}{45}$

24× 45 72×15

1080 = 1080

Yes

72. $\frac{}{12073} \frac{41}{}$

70× 73 120 × 41

5110 ≠ 4920

No

76. $\frac{18}{7} \quad \frac{23}{28}$

18× 28 24× 23

504 ≠ 552

No

78. $\frac{52}{60} \quad \frac{39}{45}$

52× 45 60× 39

2340 = 2340

Yes

80. $\frac{360}{540+ 360 + 230 + 456} = \frac{360}{1586} = \frac{180\times 2}{793\times 2} = \frac{180}{793}$

18

of the graduates found their jobs through

293

65 13

family and friends.

82. $\frac{89+11}{100} = \frac{10 \times 10}{10}$ =

$34 + 56 + 89 + 11$

190 19×10 19

$\frac{10}{}$

of the recent graduates worked 22 hours or less per week.

84.

$\frac{8}{40}$

$\frac{0}{=}$

$\frac{3}{\times}$

$\frac{28}{00}$

$\frac{}{=}$

$\frac{3}{}$

56,000 $20 \times$ 2800

20

$\frac{3}{}$

They have saved 20 of the cost of the cabin.

13 Total number of students is

10×13 65×2

1

3

0

=

1

3

0

Y

e

s

1100 + 1700 + 900 + 500 + 300 = 4500.

$\frac{1}{4500} = \frac{900 \div 900}{4500 \div 900} = \frac{1}{5}$

$\frac{1}{5}$ of the students have a medium commute.

66. 1100 + 1700 + 900 = 3700
4500 4500

9 3700÷100
4500 ÷100
= 45 37

37/45 of the students consider their commute less than long.

Cumulative Review

1 386

36 425
74. 930
= 72

32 4
164, 050

1296
5 12 15,552
12

15 5
96 4
75. 15
108
72

72

0

77. 3200

300

960, 000

78. 2,734, 603,864

− 1,835,300, 000
899, 303, 864

Avatar generated $899,303,864 more than *Titanic*.

Classroom Quiz 2.2

77

2.3 Exercises

a. Divide the numerator by the denominator.

b. Write the quotient followed by the fraction with the remainder over the denominator.

$2\frac{3}{4} = \frac{2\times 4+3}{4} = \frac{11}{4}$

6. $4\frac{6}{7} = \frac{4\times 7+6}{7} = \frac{34}{7}$

$\frac{7}{8}$ $\frac{7\times 8+7}{8}$ $\frac{63}{8}$

8. $7\frac{7}{8} = \frac{\quad}{8} = \frac{\quad}{8}$

10. $14\frac{1}{6} = \frac{14\times 6+1}{6} = \frac{85}{6}$

$15\frac{4}{5} = \frac{15\times 5+4}{5} = \frac{79}{5}$

14. $9\frac{5}{8} = \frac{9\times 8+5}{8} = \frac{77}{8}$

16. $6\frac{6}{7} = \frac{6\times 7+6}{7} = \frac{48}{7}$

18. $13\frac{5}{7} = \frac{13\times 7+5}{7} = \frac{96}{7}$

$41\frac{1}{50} = \frac{4\times 50+1}{50} = \frac{201}{50}$

22. $12\frac{5}{6} = \frac{12\times 6+5}{6} = \frac{77}{6}$

$207\frac{2}{3} = \frac{207\times 3+2}{3} = \frac{623}{3}$

$33\frac{1}{3} = \frac{33\times 3+1}{3} = \frac{100}{3}$

1.

$\frac{7\times11}{19\quad5\times20}$

$+\ 19\ 1197$

$\frac{42}{}=$

2. $\_\_\_\_\_$ $\frac{2\times3\times7}{}=7$

$=2\times2\times2\times2\times2\times3$

28. $5\ 20=\frac{}{20}=\frac{}{20}$

16

30. $4\frac{4\times22+3\ 91}{22}=\frac{}{22}$

$\frac{60}{135}=\frac{2\times\ 2\times\ 3\times\ 5}{3\times3\times3\times5}=\frac{4}{9}$

$$4\overline{)13}\quad 3\ \text{r}\ 1$$

$$\frac{13}{4} = 3\frac{1}{4}$$

$$5\overline{)9}\quad 1\ \text{r}\ 4$$

$$= 1\frac{4}{5}$$

$$6\overline{)23}\quad 3\ \text{r}\ 5$$

$$\frac{23}{6} = 3\frac{5}{6}$$

$$5\overline{)80}\quad 16$$

$$= 16$$

$$13\overline{)42}\quad 3$$

$$= 3\frac{3}{13}$$

$$2\overline{)47}\quad 23\ \text{r}\ 1$$

$$\frac{47}{2} = 23\frac{1}{2}$$

$$17\overline{)54}\quad 3\ \text{r}\ 3$$

$$= 3\frac{3}{17}$$

$$3\overline{)19}\quad 6\ \text{r}\ 1$$

$$\frac{19}{3} = 6\frac{1}{3}$$

$$10\overline{)83}\quad 8\ \text{r}\ 3$$

$$= 8\frac{3}{10}$$

$$11\overline{)132}\quad 12$$

$$\frac{132}{11} = 12$$

$$7\overline{)183}\quad 26\ \text{r}\ 1$$

$$\frac{183}{7} = 26\frac{1}{7}$$

$$9\overline{)196}\quad 21\ \text{r}\ 7$$

$$\frac{1}{9}$$
$$\frac{6}{=}$$
$$\frac{2}{1}$$
$$\frac{7}{9}$$
$$9$$

$$8\overline{)104}\quad \begin{array}{r} 13 \\ 8 \\ \hline 24 \\ 24 \\ \hline 0 \end{array}$$

$$\frac{104}{8} = 13$$

$$30\overline{)200}\quad \begin{array}{r} 6 \\ 180 \\ \hline 20 \end{array}$$

$$= 6\frac{20}{30} = 6\frac{2}{3}$$

$$\frac{8}{4} = \frac{2\times 3}{2\times 4} = \frac{3}{4}$$

$$4\frac{6}{4} = 4\frac{3}{4}$$

$$\frac{15}{90} = \frac{1\times 15}{6\times 15} = \frac{1}{6}$$

$$3\overline{)15}\quad 90 = 36$$

$$\frac{15}{75} = \frac{15\times 1}{15\times 5} = \frac{1}{5}$$

$$10\overline{)15}\quad = 10\frac{1}{5}$$

$$\frac{36}{4} = 4\frac{4}{4} = 4\times\frac{9}{4} = 9$$

$$\frac{63}{45} = \frac{9\times 7}{9\times 5} = \frac{7}{5}$$

70. $\frac{112}{21} = \frac{7\times 16}{7\times 3} = \frac{16}{3}$

$$360\overline{)390}\quad \begin{array}{r} 1 \\ 360 \\ \hline 30 \end{array}$$

$$= 1\frac{30}{360} = 1\frac{1}{12}$$

$$\frac{30}{360} = \frac{1\times 30}{12\times 30} = \frac{1}{12}$$

74. $328\overline{)764}\quad \begin{array}{r} 2 \\ 656 \\ \hline 108 \end{array}$

$$\frac{764}{328} = 2\frac{108}{328}$$

$$\frac{108}{328} = \frac{4\times 27}{4\times 82} = \frac{27}{82}$$

$$\frac{764}{328} = \frac{108}{328} = \frac{27}{82}$$

76. $1000\overline{)2150}\quad \begin{array}{r} 2 \\ 2000 \\ \hline 150 \end{array}$

$$\frac{2150}{1000} = 2\frac{150}{1000}$$

$$\frac{150}{1000} = \frac{3\times 50}{20\times 50} = \frac{3}{20}$$

$$\frac{2150}{1000} = 2\frac{150}{1000} = 2\frac{3}{20}$$

$$5\quad 37\times 8+5\quad 301$$

78. $37 \quad 8 \quad 8 \quad 8$

$$\frac{301}{360}$$

The hallway is $\frac{301}{360}$ inches wide.

1
1
4
4 459
4
05
4
19
16
3
459 3
4 = 114 4 3
They use 114 square
4
backing each hour.

156
4 627
4

22

27
24
3

$= 156\frac{3}{4}$

Nathaniel watches over $156\frac{3}{4}$ square miles of forest.

No; 157 is prime and is not a factor of 9810.

Cumulative Review

1,398, 210

1,137,963
260, 247

20,000 × 100,000 = 2,000,000,000

300,000 ÷ 1000 = 300

156 −98 58 2× 29

29

88. = = =

156 156 2× 78 78
29

78 of his new e-mails were not spam.

Classroom Quiz 2.3

1. $3\frac{5}{16} = \frac{3\times 16+5}{16} = \frac{53}{16}$

$\frac{5}{8} \cdot \frac{3}{13} = \frac{5\times 3}{8\times 13} = \frac{15}{104}$

4.

6. $\frac{7}{11} \times \frac{22}{35} = \frac{\cancel{7}^{1} \times \cancel{22}^{2}}{\cancel{35}_{5} \times \cancel{11}_{1}} = \frac{2}{5}$

$\frac{22}{45} \times 5 = \frac{\cancel{22}^{2} \times \cancel{5}^{1}}{\cancel{45}_{9}} = \frac{2}{9}$

$9 \times \frac{13}{27} = \frac{\cancel{9}^{1}}{4} \times \frac{13}{\cancel{27}_{3}} = \frac{13}{12}$ or $1\frac{1}{12}$

12. $\frac{12}{17} \times \frac{3}{24} = \frac{\cancel{12}^{1}}{17} \times \frac{3}{\cancel{24}_{2}} = \frac{3}{34}$

$\frac{8}{9} \times 6 = \frac{8}{9} \times \frac{6}{1} = \frac{8\times 2\times 3}{9\times 3} = \frac{8\times 2}{3} = \frac{16}{3}$ or $5\frac{1}{3}$

16. $5 \times \frac{7}{25} = \frac{\cancel{5}^{1}}{1} \times \frac{7}{\cancel{25}_{5}} = \frac{7}{5}$ or $1\frac{2}{5}$

18. $8 \times \frac{5}{12} \times \frac{3}{10} = \frac{\cancel{8}^{2} \times \cancel{5}^{1} \times \cancel{3}^{1}}{\cancel{12}_{3} \times \cancel{10}_{2}} = 1$

$\frac{5}{7} \cdot \frac{12}{10} \cdot \frac{7}{3} = \frac{\cancel{5}^{1} \cdot \cancel{12}^{2} \cdot \cancel{7}^{1}}{\cancel{7}_{1} \cdot \cancel{10}_{1} \cdot \cancel{3}_{1}} = \frac{2}{1}$

$\frac{5}{8} \cdot \frac{15}{16}$

20. × x

$$= \frac{5\times 15\times}{7\times 2\times} =$$

$$\frac{5x}{} = 10$$

$$\frac{28}{7}$$

$$2 \quad 15 \qquad 7\times 2\times 15 \qquad 1$$

$$\frac{5}{} \quad \frac{3}{} \quad \frac{5}{} \quad \frac{18}{} \quad \frac{3}{}$$

2. 11 65

55

10

$= 5\frac{10}{11}$

$\frac{68}{17} = \frac{4\times17}{1\times17} = \frac{4}{1} = 4$

2.4 Exercises

1 5 1×5 5

2. $\frac{}{6} \times \frac{}{7} = \frac{\quad}{6\times7} = \frac{}{42}$

22. $\times 3 = \times =$

$= 36 \quad 56\ 5$

1

$12 \times 5\frac{7}{5} = \frac{12}{1} \times \frac{67}{12} =$

67

$0 \times 6\frac{2}{3} = 0$

5 5 82 82 5

$\times 11 = 1\times \quad = \text{—} \text{ or } 11 -$

5 7 7 7 7

$2\frac{3}{5} \times 1\frac{4}{7} = \frac{13}{5} \times \frac{11}{7} = \frac{143}{35}$ or $4\frac{3}{35}$

$4\frac{3}{5} \times 1\frac{1}{10} = \frac{23}{5} \times \frac{11}{10} = \frac{253}{50}$

34. $5 \times \frac{1}{4} = \frac{4}{1} \times \frac{21}{4} = \frac{32}{7} = \frac{3}{1}\frac{8}{24}$

$\frac{8}{9} \times 4\frac{1}{11} = \frac{8}{9} \times \frac{45}{11} = \frac{40}{11}$ or $3\frac{7}{11}$

$\frac{13}{12} \times \frac{96}{65} = \frac{13 \times 8 \times 12}{12 \times 5 \times 13} = \frac{8}{5}$ or $1\frac{3}{5}$

$2 \times \frac{2}{5} \times \frac{1}{4} = \frac{20}{10} \times \frac{9}{10} = \frac{2 \times 10 \times 9}{10 \times 10} = \frac{9}{10}$

42. $\frac{12}{17} \cdot x = \frac{144}{85}$

Since $12 \cdot 12 = 144$ and $17 \cdot 5 = 85$, $\frac{12}{17} \cdot \frac{12}{5} = \frac{144}{85}$.

Thus, $x = \frac{12}{5}$.

44. $x \cdot \frac{11}{15} = \frac{77}{225}$

Since $7 \cdot 11 = 77$ and $15 \cdot 15 = 225$,

$\frac{7}{15} \cdot \frac{11}{15} = \frac{77}{225}$

Therefore, $x = \frac{7}{15}$.

$225 \times 161 = \frac{225}{1} \times \frac{8}{161} \times \frac{2}{5} \times \frac{16}{2} \times \frac{2}{1}$

$= \frac{225 \times 8 \times 2 \times 16 \times 2}{161 \times 5 \times 2 \times 1}$

$= \frac{115,200}{805}$

$= 143\frac{65}{161}$

$5\frac{1}{2} \times 63,400 = \frac{11}{2} \times \frac{63,400}{1}$

$= \frac{11 \times 2 \times 31,700}{2 \times 1}$

$= \frac{348,700}{1}$

$= 348,700$

The house was worth $348,700 in 2016.

50. $30 \times 20\frac{1}{2} = \frac{130}{1} \times \frac{41}{2} = \frac{15 \times 2 \times 41}{2} = 15 \times 41 = 615$

615 square feet of carpet is needed.

52. $\frac{3}{5} \times 275 = \frac{3}{5} \times \frac{275}{1} = \frac{3 \times 5 \times 55}{5 \times 1} = \frac{165}{1} = 165$

There are 165 subcompacts on the lot.

$\frac{7}{8} \times 36,000 = \frac{7}{8} \times \frac{36,000}{1}$

54. $= \frac{7 \times 8 \times 4500}{8 \times 1}$

$= \frac{31,500}{1}$

$31,500$

Her present purchasing power is $31,500.

56. $\frac{1470}{490} \times \frac{2}{1} \times \frac{1}{3} = \frac{3 \times 490 \times 2 \times 1}{1 \times 3 \times 2 \times 1} = 490$

490 customers attend college and come to the restaurant at least three times per week.

There is an infinite number of answers. Any fraction that can be simplified to $\frac{3}{7}$ would be a correct answer. Thus three possible answers to this problem are $\frac{6}{14}$, $\frac{9}{21}$, or $\frac{12}{28}$.

$\frac{5}{16}$

Cumulative Review

529

373

16

The area of the tornado danger zone is

14 21 28

31 16, 399

15 5

89

62

$373\frac{5}{16}$ square miles.

279

279

0

The average number of cars using the bridge in one day is 529 cars.

368

42 [redacted]

12 6

85

252

336

336

0

The average number of calls made per month by one salesperson is 368 calls.

61. $\frac{78-41}{37} = \frac{37}{37}$

78 78

of the cars were made in the United States.

62. $\frac{96-15}{96} = \frac{81}{96} = \frac{3\times 27}{3\times 32} = \frac{27}{32}$

$\frac{27}{32}$ of the class passed the first exam.

Classroom Quiz 2.4

1. $21\times \frac{5}{7} = 21\times \frac{5}{7} = 3\times 7\times \frac{5}{1\ 7} = 3\times \frac{5}{1} = 15$

1 1

$\frac{13}{15} \times \frac{5}{12} = \frac{13}{3} \times \frac{1}{12} = \frac{13}{36}$

3. $7\frac{2}{3}\times 1\frac{1}{5} = \frac{23}{3}\times\frac{6}{5} = \frac{23}{1}\times\frac{2}{5} = \frac{46}{5}$ or $9\frac{1}{5}$

3 5 3 5 1 5 5 5

$\frac{26}{7} \div \frac{13}{3} = \frac{26}{7} \times \frac{3}{13} = \frac{6}{7}$

6.

8. $\frac{7}{15} \div \frac{9}{25} = \frac{7}{15} \times \frac{25}{9} = \frac{35}{27}$ or $1\frac{8}{27}$

10. $\frac{3}{4} \div \frac{2}{3} = \frac{3}{4} \times \frac{3}{2} = \frac{9}{8}$ or $1\frac{1}{8}$

12. $\frac{2}{7} \div 2\frac{2}{9} = \frac{2}{7} \div \frac{7}{9} = \frac{2}{7} \times \frac{9}{7} = \frac{18}{49}$

14. $\frac{7}{14} \div \frac{3}{14} = \frac{7}{14} \times \frac{14}{3} = \frac{7}{3}$ or $1\frac{4}{3}$

16. $1\frac{3}{7} \div 1 = \frac{10}{7} \times \frac{7}{10} = 1$ or $2\frac{1}{2}$

7 3 3 3

18. $3\div\frac{5}{6} = \frac{3}{1}\times\frac{6}{5} = \frac{18}{5}$ or $3\frac{3}{5}$

20. $\frac{9}{16} \div 1 = \frac{9}{16} \times 1 = \frac{9}{16}$

$\frac{5}{16}$

22. $0 \div \frac{5}{16} = 0\times\frac{16}{5} = 0$

$\frac{24}{0}$

$29 \div 0$

Division by 0 is undefined.

$16 \div \frac{8}{11} = \frac{16}{1} \times \frac{11}{8} = 22$

2.5 Exercises 1118

One way to think about it is to imagine how many $\frac{1}{3}$-pound rocks could be put in a bag that holds 2 pounds of rocks and then imagine how many $\frac{1}{2}$-pound rocks could be put in the same bag. The number of $\frac{1}{3}$-pound rocks would be

$5 \div 12 = 5 \times 1 = 5$

28. ~~6~~ ~~1~~ ~~6 12 72~~

30. $\frac{3}{4} \div \frac{9}{16} = \frac{3}{4} \times \frac{16}{9} = 3$ or $1\frac{1}{3}$

32. $2\frac{2}{3} \div 4\frac{1}{3} = \frac{8}{3} \div \frac{13}{3} = \frac{8}{3} \times \frac{3}{13} = \frac{8}{13}$

larger. Therefore, $2 \div \frac{1}{3}$ is a larger number.

$$\frac{5}{11} \div \frac{7}{22} = \frac{5}{11} \times \frac{7}{7} = \frac{3}{7}$$

34. $9 \div 3 = \frac{1}{3} \div \frac{1}{9} = \frac{1}{3} \times \frac{28}{1} = 3$

36. $12{,}000 \div \frac{3}{8} = \frac{1}{3} \times \frac{3 \times 4000 \times 8}{1} = 32{,}000$

38. $\frac{5}{9} \div 100 = 5 \times \frac{1}{100} = \frac{1}{180}$

40. $\frac{3}{10} \div \frac{5}{8} = \frac{3}{5} \times \frac{8}{3} = \frac{16}{5} = 3\frac{1}{5}$

$3\frac{1}{4} \div \frac{1}{4} = \frac{19}{4} \div \frac{1}{4} = \frac{19}{4} \times \frac{4}{1} = 19$

44. $7 \times \frac{4}{5} = \frac{4}{5} \times \frac{47}{4} = \frac{47}{5} = 9\frac{2}{5}$ or $3\frac{1}{6} \times \frac{2}{3} = \frac{6}{2} \times \frac{2}{6} = \frac{12}{12} = 1$

$1\frac{7}{8} \div 3\frac{3}{4} = \frac{15}{8} \div \frac{15}{4}$

$= \frac{15}{8} \times \frac{4}{15}$

$= \frac{15 \times 4 \times 1}{2 \times 4 \times 15}$

$= \frac{1}{2}$

$7 \div 1\frac{2}{3} = 7 \div \frac{7}{3} = 7 \times \frac{3}{7} = \frac{21}{7} = 3$

48. $5\frac{1}{4} \div 5\frac{1}{4} \div 7\frac{1}{4}$

$14\frac{2}{3} \div 3\frac{1}{4} = \frac{44}{3} \div \frac{7}{4} = \frac{44}{3} \times \frac{4}{7} = \frac{176}{21} = 8\frac{8}{21}$ or $4\frac{3}{2} \div 3\frac{2}{3} \div 3\frac{2}{3} \div 3\frac{2}{3} = \frac{3}{2} \div \frac{11}{3} \div \frac{11}{3} \div \frac{11}{3} = \frac{3}{2} \times \frac{3}{11} \times \frac{3}{11} \times \frac{3}{11} = \frac{81}{1331}$

50. $\frac{4}{16} \div 5 = \frac{4}{16} \div \frac{5}{1} = \frac{4}{16} \times \frac{1}{5} = \frac{4}{80} = \frac{1}{20}$

52. $\frac{11}{3} \div \frac{11}{3} \div \frac{11}{3} \div \frac{11}{3} = \frac{11}{3} \times \frac{3}{11} \times \frac{3}{11} \times \frac{3}{11} = \frac{27}{1331}$

54. $\frac{11}{16} \times 4\frac{1}{2} = \frac{11}{16} \times \frac{9}{2} = \frac{99}{32} = 3\frac{3}{32}$ or $2\frac{11}{20} \times \frac{1}{2} = \frac{51}{20} \times \frac{1}{2} = \frac{51}{40} = 1\frac{11}{40}$

$5\frac{5}{6} \div 7 = \frac{35}{6} \div \frac{7}{1} = \frac{35}{6} \times \frac{1}{7} = \frac{5}{6}$

$x \div \frac{2}{3} = \frac{15}{16}$

$\frac{35}{8} \div \frac{15}{16} = \frac{35}{8} \times \frac{16}{15} = \frac{14}{3}$

$x = 8$

$x \div 6 = 121\frac{54}{99}$

$121\frac{54}{99} \div 6 = \frac{11}{9}$

$= 1\frac{2}{9}$

70. $7\frac{1}{2} \div 20 \div \frac{15}{20} = \frac{15}{2} \times \frac{1}{15} = \frac{5 \times 3}{2 \times 5 \times 4} = \frac{3}{8}$

Each segment of the beach is $\frac{3}{8}$ mile.

$200 \div 4\frac{1}{6} = \frac{200}{1} \div \frac{25}{6}$

72. $\frac{200 \times 6}{1 \times 25}$

$= 48$

His average speed was 48 miles per hour.

74. $113\frac{1}{3} \div 52\frac{2}{3} = \frac{340}{3} \div \frac{17}{3} = \frac{340}{3} \times \frac{3}{17} = 20$

20 transmitters are needed.

$3\overline{)390}\ 4$

76. $390 \div 4 = \frac{390}{4} \times \frac{4}{3} = 520$

He must pack 520 boxes.

$10\overline{)283}$

10 5 10 2 20 28× 4= 1× 4= 21

=10÷ 2 = ÷ = × = = 4

$2\frac{1}{2}$ 2 1 2 1 5 5

0^3 is undefined.

$4^{\frac{1}{2}}$ 1 8 9 8 9 9 81 1

62. $=4\div=\div=\times=$ or 5

7 48 7

48× = × = 42

1 8

21+42=63

They hiked a total of 63 miles on these two trails.

$$4\frac{8}{9} \times 5\frac{1}{3} = \frac{2}{9} \times \frac{14}{7} \times \frac{36}{3} = \frac{2 \times 7 \times 3 \times 12}{9 \times 7 \times 3} = \frac{16 \times 16}{8 \times 8} = 2 \times 12 = 24$$

Estimate by multiplying:
$18 \times 28 = 504$

Exact $= 18\frac{1}{4} \times 27\frac{1}{2} = \frac{73}{4} \times \frac{55}{2} = \frac{4015}{8} = 501\frac{7}{8}$

It is off by only $\frac{1}{8}$.

Cumulative Review

39,576,304 = thirty-nine million, five hundred seventy-six thousand, three hundred four

509,270 = 500,000 + 9000 + 200 + 70

126+34+9+891+12+27=1099

87,595,631

Classroom Quiz 2.5

1. $\frac{16}{27} \div \frac{4}{13} = \frac{4}{27} \times \frac{13}{4} = \frac{52}{27} \times \frac{1}{16} = \frac{13}{27}$ or $1\frac{25}{27}$

2. $8\frac{1}{4} \div 3\frac{1}{6} = \frac{33}{4} \div \frac{19}{6} = \frac{33}{4} \times \frac{6}{19} = \frac{99}{38}$ or $2\frac{23}{38}$

3. $5\frac{1}{24} \div 3 = \frac{41}{8} \times \frac{1}{24} = \frac{41}{192}$ or $1\frac{17}{192}$

Use Math To Save Money

Tricia bought two cups of coffee each day.
$2 \times 3 \times 30 = 6 \times 30 = 180$
She spent $180 on coffee each month.

180
12
360
180
2160
She would spend $2160 on coffee in 12 months.

$7 \times 180 = 1260$

1260
−1000
260

There would be $260 for the celebration dinner.

5. $\frac{3}{4} \times 1000 = \frac{3}{4} \times \frac{1000}{1} = \frac{3 \times 4 \times 250}{4 \times 1} = 750$

1260
−750
510
There would be $510 for the celebration dinner.

$2 \times 30 = 60$
Tricia drinks 60 cups of coffee each month.
$60 \div 20 = 3$
She will need 3 pounds of coffee each month.
$3 \times 10 = 30$
It would cost her $30 each month to make her own coffee.

180
− 30

150

She would save $150 each month by making

coffee.

150
12
300
150

In seven months, she would save $1260, which is more than the TV would cost.

1800

She would save $1800 in a year by making coffee.

Answers will vary. Answers will vary. Answers will vary.

How Am I Doing? Sections 2.1–2.5
(Available online through MyMathLab or from the Instructor's Resource Center.)

Three out of eight equal parts are shaded. The fraction is $\frac{3}{8}$.

2. $\frac{\text{number from outside the country}}{\text{total number}} = \frac{800}{3500 + 2600 + 800} = \frac{800}{6900} = \frac{8 \times 100}{69 \times 100} = \frac{8}{69}$

3. $\frac{\text{number defective}}{\text{total number}} = \frac{10}{224} = \frac{2 \times 5}{2 \times 112} = \frac{5}{112}$

$\frac{4}{28} = \frac{4 \div 4}{28 \div 4} = \frac{1}{7}$

$\frac{13}{39} = \frac{13 \div 13}{39 \div 13} = \frac{1}{3}$

$16 = 16 \div 16 = 1$

$112 \div 16 = 7$

$\frac{175}{200} = \frac{175 \div 25}{200 \div 25} = \frac{7}{8}$

$\frac{44}{121} = \frac{44 \div 11}{121 \div 11} = \frac{4}{11}$

$3^2 = 3 \times 3 + 2 = 11$

$3 \quad 3 \quad 3$

10. $15\frac{1}{3} = \frac{46}{3} = \frac{15 \times 3 + 1}{3}$

20

4

$\frac{8}{01}$

$5\overline{)29}$ 5, 25, 4

$29 \div 5 = 5\frac{4}{5}$

$17\overline{)36}$ 2, 34, 2

$\frac{36}{17} = 2\frac{2}{17}$

$\frac{17}{5} \times \frac{1}{1} = \frac{5 \times 1}{11 \times 1} =$

14. $\frac{5}{11} \times \frac{1}{4} = \frac{5 \times 1}{11 \times 4} =$

15. $\frac{3}{7} \times \frac{14}{9} = \frac{3 \times 2 \times 7}{7 \times 3 \times 3} =$

$\frac{1}{1} \quad \frac{1}{1} \quad \frac{10}{16} \quad \frac{16}{160} \quad \frac{7}{7}$

16. $3 \times 5 = 3 \times 3$ 9 or 17 9

17. $\frac{3}{7} \div \frac{3}{7} = \frac{3}{7} \times \frac{7}{3} = 1$

$\frac{7}{16} \div \frac{7}{8} = \frac{7}{16} \times \frac{8}{7} = \frac{7 \times 8}{2 \times 8 \times 7 \times 2} = \frac{1}{4}$

$\frac{46}{26}$

19. $6 \div 1\frac{7}{21}$

$= \frac{46}{7} \times \frac{21}{26}$

$= \frac{2 \times 23 \times 3 \times 7}{7 \times 2 \times 13}$

$= \frac{69}{13}$ or $5\frac{4}{13}$

$12 \div \frac{4}{7} = \frac{12}{1} \times \frac{7}{4} = \frac{3}{1} \times \frac{7}{1} = 21$

$\frac{0}{1}$

$\frac{81}{4} = 20\frac{1}{4}$

20. $7 \quad 1 \quad 4 \quad 1\,1$

2.6 Exercises

2. 6 and 9

Multiples of 6: 6, 12, 18, 24, 30, ...

Multiples of 9: 9, 18, 27, 36, 45, ...

The least common multiple is 18.

22 and 55
Multiples of 22: 22, 44, 66, 88, 110, ...
Multiples of 55: 55, 110, 165, 220, 275, ...
The least common multiple is 110.

18 and 30
Multiples of 18: 18, 36, 54, 72, 90, ...
Multiples of 30: 30, 60, 90, 120, 150, ...
The least common multiple is 90.

8 and 60
Multiples of 8: 8, 16, 24, 32, 40, 48, 56, 64, 72, 80, 88, 96, 104, 112, 120, ...
Multiples of 60: 60, 120, 180, 240, 300, ...
The least common multiple is 120.

25 and 35
Multiples of 25: 25, 50, 75, 100, 125, 150, 175, 200, ...
Multiples of 35: 35, 70, 105, 140, 175, ...
The least common multiple is 175.

7 = 7
14=2× 7
LCD=2× 7=14

5 = 5
7 = 7
LCD=5× 7=35

13=13

8=2×2×2
12=2×2×3
LCD=2×2×2×3=24

15=3×5

25=5× 5
LCD=3× 5× 5=
75

11=11

44=2×2×11

LCD=2× 2× 11=44

20=2× 2=5
30=2× 3× 5
LCD=2× 2× 3× 5= 60

6=2×3
30=2× 3× 5

20=2× 2×5
70=2× 5× 7
LCD=2× 2× 5× 7=140

30=2× 3×5
50=2× 5× 5
LCD=2× 3× 5× 5=150

5 = 5
3 = 3
10=2× 5
LCD=2× 3× 5=30

48=2× 2× 2× 2× 3
12=2× 2× 3 8=2×2×2

LCD=2× 2× 2× 2× 3=48

16=2× 2× 2× 2
20=2× 2× 5
5 = 5
LCD=2× 2× 2× 2× 5=80

45=3× 3× 5
15=3× 5
30=2× 3× 5
LCD=2× 3× 3× 5=90

36=2× 2× 3× 3
48=2× 2× 2× 2× 3
24=2× 2× 2× 3
LCD=2× 2× 2× 2× 3× 3=144

$1 = \frac{1}{6} \times \frac{5}{5} = \frac{5}{30}$

The numerator is 5.

$= \frac{7}{9} \times \frac{7}{9} = \frac{9}{9} \frac{63}{81}$

The numerator is 63.

$\frac{5}{5} = \frac{5}{5} \times \frac{3}{3} = \frac{15}{15}$

LCD=2× 3× 5=30

14 14 3 42

The numerator is 15.

$\frac{3}{50} = \frac{3}{50} \times \frac{2}{2} = \frac{6}{100}$

The numerator is 6.

$\frac{6}{7} = \frac{6}{7} \times \frac{21}{21} = \frac{126}{147}$

The numerator is 126.

52. $\frac{3}{=}$ $\frac{3}{25}$ $\times\frac{7}{25}$ $=\frac{21}{175}$

The numerator is 21.

$9=\ 9\times 2=\ 18$

$10\times 2\ \ 20$

$\frac{3}{4}=\ \frac{3\times 5}{4\times 5}=\ \frac{15}{20}$

$\frac{5}{24}=\ \frac{5\times 3}{24\times 3}\ \ \frac{15}{72}$

$\frac{7}{36}=\frac{7\times 2}{36\times 2}=\frac{14}{72}$

$=19\times\ =114$

$\frac{25}{6}25\times\ \frac{\quad}{150}$

$\frac{}{30}=\frac{7\times 5}{30\times 5}=\frac{35}{150}$

$9=3\times 3$

$54=3\times 3\times 3\times 2$

$LCD=2\times 3\times 3\times 3=54$

$\frac{7}{9}=\frac{7\times 6}{9\times 6}=\frac{42}{54}$

and $\frac{35}{54}$

LCD = 42

$=\frac{6\times 6}{7\times 6}=\frac{36}{42}$

and $\frac{36}{42}$

$20=2\times 2\times 5$

$8=2\times 2\times 2$

$LCD=2\times 2\times 2\times 5=40$

$=\frac{19\times 2}{20\times 2}=\frac{38}{40}$

$=\frac{7\times 5}{8\times 5}=\frac{35}{40}$

$=\frac{3\times 2}{25\times 2}=\frac{6}{50}$

$\frac{45}{50}$ and $\frac{6}{50}$

$20=2\times 2\times 2\times 5$

$15=3\times 5$

$40=2\times 2\times 2\times 5$

$LCD=2\times 2\times 2\times 3\times 5=120$

$\frac{3}{3\times 6}=\frac{18}{20}\ \frac{20}{20\times 6\ 120}$

$\frac{7}{}=\frac{7\times 8}{15\times 8\ \ 120}=\frac{56}{120}$

$\frac{9}{40}=\frac{9\times 3}{40\times 3\ 120}=\frac{27}{120}$

$,\frac{56}{120},\frac{27}{120}$

$7 = 7$

$9=3\times 3$

$63=3\times 3\times 7$

$LCD=3\times 3\times 7=63$

$\frac{5}{9}=\frac{5\times 7}{9\times 7}=\frac{35}{63}$

$\frac{9}{63}=\frac{9}{63}$

$\frac{45}{63}\ \frac{28}{63}\ \frac{5}{63}$

$18=2\times 3\times 3$

$6=2\times 3$

$36=2\times 2\times 3\times 3$

$LCD=2\times 2\times 3\times 3=36$

$\frac{}{}=\frac{7\times 2}{}=\frac{14}{}$

and $\frac{35}{}$

$18 \times 2 \quad 36$

$\frac{5}{6} = \frac{5 \times 6}{6 \times 6} = \frac{30}{36}$

$=$

$\frac{1}{3}$

40

$10=2\times5$

$25=5\times5$

LCD$=2\times5\times5=50$

$-$ $=9\times5=45$

10 $10\times$ 5 50

36

$\frac{14}{36}, \frac{30}{36}, \frac{13}{36}$

a. $32 = 2 \times 2 \times 2 \times 2 \times 2$

$6=2\times3$

$8=2\times2\times2$

LCD$=2\times$ $2\times$ $2\times$ $2\times$ $2\times$ $3=96$

b. $\frac{5}{3}$ $\frac{5\times}{}$ $=15$

$32\times 3\ 96$

$= \frac{5\times16}{6\times16} = \frac{80}{96}$

$\frac{7}{8}\frac{}{4} = \frac{7\times12}{8\times12\ 96} =$

$,\frac{80}{96},\frac{84}{96}$

Cumulative Review

$(5-3)^2 + 4\times 6-3 = 2^2 + 4\times 6-3$

$4+ 4\times 6-3$

$4+ 24-3$

$28-3$

25

76. $4\times \frac{3}{4}\frac{}{3} = \frac{2}{3}\frac{19}{7} \times \frac{2}{21} = \frac{19\times2}{21\ 21} = \frac{19}{21}$ or $\frac{1}{3}$

$16\frac{1}{2}\div\frac{3}{2}=\frac{33}{2}\div\frac{3}{2}=\frac{33}{2}\times\frac{4}{3}=\frac{3\times11\times2\times2}{2\ 2\ 3}=$

$242\ 23\quad 2\times34$

Classroom Quiz 2.6

$14=2\times7$

$35=5\times7$

LCD$=2\times 5\times 7=$
70

$5 = 5$

$8=2\times2\times2$

$10=2\times 5$
LCD$=2\times2\times2\times5=$

10. $\frac{2}{5}\frac{}{} = \frac{}{}\frac{}{} + \frac{6}{15}\frac{+}{15} = \frac{1}{15}$

12. $\frac{3}{4}\frac{}{} = \frac{}{}\frac{8}{20} + \frac{15}{20} = \frac{15+8}{20} = \frac{}{}$

14. $\frac{11}{18} + \frac{1}{9} = \frac{11}{18} + \frac{2}{18} = \frac{11+2}{18} = \frac{13}{18}$

16. $2\frac{3}{4} = \frac{11}{4} = \frac{12}{4} - \frac{2}{6}$ or $1\frac{5}{6}$

$\frac{13}{7} + \frac{}{} = \frac{13}{7} + \frac{70}{70} = \frac{1}{70}3+ = \frac{83}{70}$

18.

$-\ 0\ 10\ 100\ 100\ 100\ 100$

20. $\frac{8}{15} + \frac{3}{10} = \frac{16}{30} + \frac{9}{30} = \frac{16+9}{30} = \frac{25}{30} = \frac{5}{6}$

$\frac{5}{6}\ \frac{7}{30}\ \frac{20}{30}\ \frac{21}{30}\ \frac{20+21}{30}\ \frac{41}{30}\ \frac{17}{30}$

22. $\frac{}{6} + \frac{}{8} = \frac{}{24} + \frac{}{24} = \frac{}{24} = \frac{}{24}$ or 1

$\frac{1}{12} + \frac{24}{7} = \frac{24+7}{7} = \frac{31}{7}$

$35\ 10\ 70\ 707070$

26. $\frac{37}{20}\frac{2}{5} \frac{37}{20}\frac{8}{20} \frac{37}{20}\frac{8}{20} = \frac{29}{20}$ or $1\frac{9}{20}$

$\frac{8}{3} = \frac{64}{27} = \frac{64-27}{27} = \frac{37}{27}$

9872727272

$9\ 1\ \frac{27}{2}\ \frac{2}{25}\ \frac{25}{5}$

40

11 4 44

3. — – —

18 ×4 72

$\frac{}{10} - \frac{}{15} = \frac{}{30} - \frac{}{30} = \frac{}{30} = 6$

$\frac{9}{24} \frac{3}{8} \frac{9}{24} \frac{9}{24}$

$- = - = 0$

2.7 Exercises

$\frac{7}{11} - \frac{2}{11} = \frac{7}{11} - \frac{4}{11} = \frac{7-4}{11} = 3\frac{}{11}$

2. 7 + 3 = 7 + 3 = 10

10 5 10 10 10
10

4 12+416
+ =

17 17 17 17

19 – 4 =19 –4 =15 =1

45 45 45 45 3

8. 103 3 103– 3 100
– = · = 10=

110 110 110 110 11

$$25\frac{20}{} - 5\frac{4}{} = 25\frac{20}{} - 25\frac{20}{} = 0$$

38. 7 - 1 = 21 – 2 = 21– 2 =19
8 12 24 24 24 24

0

40. 2 12 = 12 –12 = = 0
12

3 18 18 -18 = 18 18

42. $\frac{2}{3} - \frac{1}{16} = \frac{32}{48} - \frac{3}{48} = \frac{32-3}{48} = \frac{29}{48}$

44. $\frac{7}{8} + \frac{5}{6} + \frac{7}{24} = \frac{21}{24} + \frac{20}{24} + \frac{7}{24}$

$\frac{21+20+7}{24}$

$\frac{48}{24}$

2

$1 + 3 + 4 = 7 + \frac{18}{84} + \frac{16}{84} = \frac{7+18+16}{84} \frac{41}{84}$

12 14 21 84 84 84

48. $\frac{1}{12} + \frac{5}{36} + \frac{5}{6} = \frac{3}{36} + \frac{5}{36} + \frac{30}{36}$

$\frac{3+5+30}{36}$

$\frac{38}{36}$

$\frac{19}{18}$ or $1\frac{1}{18}$

$x + \frac{1}{8} = \frac{7}{16}$

$\frac{7}{16}$

$\frac{5}{16} + \frac{2}{16} = \frac{7}{16}$

$x = \frac{5}{16}$

$x + \frac{1}{5} = \frac{33}{40}$

$\frac{33}{40}$

$\frac{1}{40} + \frac{32}{40} = \frac{33}{40}$

$\frac{1}{40}$

$= 40$

54. $x - \frac{5}{8} =$

56. $\frac{3}{4} + \frac{3}{9} = \frac{6}{8} + \frac{3}{8} = 1\frac{1}{8}$ or 1

$+ \frac{1}{2} = \frac{2}{2} = 1$

They ran a total of $1\frac{1}{8}$ miles and they walked a total of 1 mile.

58. $\frac{11}{32} - \frac{1}{8} = \frac{11}{32} - \frac{4}{32} = \frac{7}{32}$

The tread depth will decrease $\frac{7}{32}$ of an inch.

60. a. $\frac{1}{2} + \frac{1}{3} = \frac{3}{6} + \frac{2}{6}$

$\frac{5}{6}$ of the 5-gallon jug is full.

$\frac{1}{2} \times \frac{5}{6} = \frac{1 \times 5}{2 \times 6} = \frac{5}{12}$

There is $\frac{5}{12}$ of the 5-gallon jug left.

$\frac{1}{8} + \frac{1}{2} + \frac{1}{8} + \frac{4}{8} + \frac{5}{8}$

$= \frac{5}{8}$

He needs $\frac{5}{8}$ cup for the two recipes.

$\frac{3}{4} - \frac{5}{8} = \frac{6}{8} - \frac{5}{8} = \frac{1}{8}$

He will have $\frac{1}{8}$ cup left.

Cumulative Review

$\frac{15}{85} = \frac{15 \div 5}{85 \div 5} = \frac{3}{17}$

65. $\frac{27}{} = \frac{27 \div 9}{} = 3$

207 207÷ 9 23
12 24

8

125 13

$$x - \frac{14}{24} = \frac{5}{24}$$

$$\frac{19}{24} - \frac{14}{24} = \frac{5}{24}$$

$$x = \frac{19}{24}$$

66. $\sqrt{14}\ 125$

112

13

$$\frac{14}{14} = 8$$

67. $14 = \frac{3}{7}$ $\frac{14 \times 7 + }{7}$ $= \frac{101}{7}$

$4\frac{1}{2} \div 1\frac{1}{3} = \frac{13}{2} \div \frac{3}{2} = \frac{13}{2} \times \frac{2}{3} = \frac{26}{3}$ or $2\frac{2}{3}$

$5\frac{1}{3} \times 1\frac{3}{11} = \frac{16}{3} \times \frac{14}{11} = \frac{3}{1} \times \frac{7}{9} = \frac{7}{3}$

Classroom Quiz 2.7

1. $\frac{7}{8} + \frac{7}{10} = \frac{7}{8} \times \frac{5}{4} + \frac{7}{10} \times \frac{4}{5} = \frac{35}{40} + \frac{28}{40} = \frac{63}{40}$ or $1\frac{23}{40}$

2. $\frac{5}{24} + \frac{3}{8} + \frac{5}{6} = \frac{5}{24} + \frac{5}{6} \times \frac{4}{4} + \frac{3}{8} \times \frac{3}{3}$

$= \frac{5}{24} + \frac{20}{24} + \frac{9}{24}$

$= \frac{34}{24}$ or $1\frac{5}{12}$

3. $\frac{2}{3} - \frac{5}{16} = \frac{2}{3} \times \frac{16}{16} - \frac{5}{16} \times \frac{3}{3} = \frac{32}{48} - \frac{15}{48} = \frac{17}{48}$

2.8 Exercises

$8\frac{3}{8}$

$5\frac{3}{8}$

$6 = 13\frac{3}{4}$

$9\frac{5}{10}$

$2\frac{10}{3}$

$7\frac{2}{7} = 7\frac{1}{10}$

$5\frac{3}{14}$

$3\frac{5}{3}$

$8\frac{2}{9}$

$7\frac{7}{9}$

$15\frac{9}{16}$

9

$1\frac{11}{9}$

$1\frac{2}{11}$

$1\frac{2}{11}$

$1\frac{12}{18}$

$\frac{18}{13}$

$1\frac{7}{18}$

$6\frac{2}{5}$

$7\frac{3}{20}$

$6\frac{8}{20}$

$3\frac{7}{20}$

$13\frac{11}{20}$

$9\frac{3}{4}$

$5\frac{1}{6}$

$9\frac{9}{12}$

$5\frac{12}{12}$

$4\frac{7}{12}$

$10\frac{10}{10}$

$10\frac{15}{2}$

$\frac{3}{10}$

$\frac{10}{10}$

$\frac{15}{10}$

$-10\frac{10}{15}$

0

$$8\overline{14}^{14}8 = 87^{4}$$

$$\begin{array}{r} 25 \\ 14 \\ \hline \end{array}\ \begin{array}{l} 2 \\ 11 \end{array}$$

$$24^{11}\overline{11}$$
$$14^{2}$$

11

1

0

9

11

8 $2\frac{3}{4}$

$\frac{3}{4}$

$\frac{5}{5}$

18 $\frac{3}{5}$

$4\frac{3}{5}$

$13\frac{2}{5}$

22 $\frac{1}{8}$

$+14\frac{3}{8}$

$36\frac{4}{8} = 36\frac{1}{2}$

$8\,5\frac{1}{7}$

$\frac{1}{4}$

$\frac{20}{15}\frac{4}{20}\frac{5}{9}$

$10\frac{5}{6}$

$9\frac{2}{3}$

$19\frac{9}{6} = 20\frac{3}{6} = 20\frac{1}{2}$

32. $34\frac{208}{15}$

$+\ 45$

$\frac{60}{35}\frac{3}{32}$

$\frac{7}{12}$

34. 22

36. $41\frac{1}{2}$

$-\ 3\frac{7}{18}$

$4\,36\frac{3}{14}$

$3\,36$

$8\,\frac{12}{5}\frac{25}{10}\frac{60}{9}$

$5\frac{54}{60}$

$\frac{39}{36}$

$3\frac{14}{36}$

$\frac{25}{36}$

$\frac{85}{60}$

$5\frac{54}{60}$

$\frac{31}{60}$

40 $6\frac{3}{7}$

$\frac{7}{7}$

$\frac{3}{6}$

$\frac{4}{7}$

87 $\frac{7}{56}$

$-\ 56$

$\frac{10}{10}$

$86\frac{10}{7}10$

$\frac{3}{10}$

$\frac{40}{60}$

$4\frac{2}{3}$

$3\frac{4}{5}$

$\frac{60}{45}\frac{48}{60}$

$6\frac{45}{60}$

$13\frac{133}{60} = 15\,60\frac{13}{}$

46. $\frac{9}{10}$

$\frac{4}{24}$

5

$\frac{1}{6}$

$\frac{9}{10}$

$\frac{8}{10}$

$6\frac{2}{}$

$$\frac{9}{16}\frac{1}{}$$ $$\frac{\quad 4}{\quad}$$ $$\frac{36}{16}\frac{9}{}$$

$\frac{36}{}$ $\frac{5}{10}$

$$30\frac{1}{9} = 31\frac{10}{10}$$

$6\frac{19}{36}$ The triathlon consists of $31\frac{9}{10}$ miles.

48.

$$\begin{array}{r} 69\frac{15}{16} \\ -\,57\frac{13}{16} \\ \hline 12\frac{2}{16} = 12\frac{1}{8} \end{array}$$

The muskellunge was $12\frac{1}{8}$ pounds heavier.

50.

$$\begin{array}{r} 3\frac{3}{4} \\ -\,1\frac{2}{3} \\ \hline 2\frac{1}{12} \end{array} \qquad \begin{array}{r} 3\frac{9}{12} \\ -\,\frac{8}{12} \\ \hline \end{array}$$

Julio bought $2\frac{1}{12}$ pounds more turkey than salami.

52. a.

$$\begin{array}{r} 17\frac{5}{8} \\ +\,13\frac{1}{2} \\ \hline \end{array} \qquad \begin{array}{r} 17\frac{5}{8} \\ +\,13\frac{4}{8} \\ \hline 30\frac{9}{8} = 31\frac{1}{8} \end{array}$$

He lost a total of $31\frac{1}{8}$ pounds.

b.

$$\begin{array}{r} 46\frac{8}{8} \\ -\,31\frac{1}{8} \\ \hline \end{array} \qquad \begin{array}{r} 45\frac{8}{8} \\ -\,31\frac{1}{8} \\ \hline 14\frac{7}{8} \end{array}$$

He needs to lose another $14\frac{7}{8}$ pounds.

Estimate: $103 - 87 = 16$

Exact:

$$\begin{array}{r} 102\frac{5}{7} \\ -\,86\frac{2}{3} \\ \hline \end{array} \qquad \begin{array}{r} 102\frac{15}{21} \\ -\,86\frac{14}{21} \\ \hline 16\frac{1}{21} \end{array}$$

Our estimate is very close. We are off by only $\frac{1}{21}$.

58.

$$5 - 3 \times 5 = 5 - 5$$

60.

$$\frac{3}{4} + \frac{1}{4} \div \frac{6}{3} = \frac{3}{4} + \frac{2}{4} \times \frac{1}{5}$$

$$= \frac{3}{4} + \frac{2}{20}$$

$$= \frac{15}{20} + \frac{3}{20}$$

$$= \frac{18}{20}$$

$$= \frac{9}{10}$$

62.

$$\frac{5}{12} \div \frac{3}{10} \times \frac{9}{5} = 1 \qquad \frac{5}{10} \times \frac{9}{1} \times \frac{1}{5} = \frac{5}{1} \times \frac{1}{2} = \text{or } 2\frac{1}{2}$$

$$\frac{5}{12} \quad \frac{10}{5} \quad \frac{9}{2} \quad \frac{1}{3} \quad \frac{5}{5} \qquad 2\,1\,1 \quad 2 \quad 2$$

$$\frac{5}{12} \quad \frac{1}{10} \quad \frac{2}{9} \quad \frac{4}{1} \quad \frac{5}{5} \qquad 1$$

$$\frac{23}{}$$

$$\times + \div = \times + \times$$

$$6\ 2 \qquad 3 \qquad 3 \qquad 6 \qquad 2$$

$$\frac{34}{}$$

$$\frac{5}{12}\frac{1}{2} +$$

$$\frac{5}{}_{+}\ \frac{1}{}_{\times}\frac{6}{}$$

$$\frac{4}{2}$$

$$\frac{151}{} \qquad 6 - \frac{130}{} \qquad 7 =$$

$$\frac{1057}{42 - \frac{780}{4}}$$

$$4$$

$$2$$

$$2$$

$$\frac{1057 - 780}{42}$$

$$\frac{277}{} \text{ or } 6\ \frac{25}{}$$

$$\frac{12}{12} = \frac{2}{12} + \frac{6}{12}$$

$$= 12^{11}$$

$\left(1+\frac{1}{5}\right)\times\frac{5}{7}=\left(\frac{1}{2}+\frac{1}{5}\right)\times\frac{5}{36}\ \frac{11}{326}\ \frac{11}{}$

$\frac{3}{6}\times\frac{5}{11}$

$\frac{1}{2}\times\frac{5}{11}$

$22\frac{5}{}$

$-\left(\frac{3}{}\right)^{2}\frac{5}{}\ \frac{9}{}\ \frac{5}{}\ \frac{9}{}\ 4\ \frac{9}{}$

68. $\frac{}{4}\div\frac{}{16}=\frac{}{4}\div\frac{}{16}=\frac{}{5}\times\frac{}{20}=$

$\frac{5}{4}\ \frac{5}{}\ \frac{16}{}\ \frac{1}{}\ \frac{16}{}\ \frac{16}{}$

70. $7\ \times\ =7\ 25\ 7\ 5\ 35$

$\times\ =\ \times\ =$

$\frac{}{2}\left(\frac{51^{2}}{}\right)\frac{5}{7}\left(\frac{}{53}\right)$

$9^{\frac{7}{}}\div9^{\frac{1}{}}$

$\frac{7}{9}\ \frac{9}{}$

$\times 1$

7

Cumulative Review

1200

$\frac{}{400}$

480,000

~~4050~~

Classroom Quiz 2.8

1. $7\frac{5}{12}+4\frac{11}{18}$

$7\frac{15}{36}+4\frac{22}{36}=11\frac{37}{36}=12\frac{1}{36}$

2. $13\frac{2}{9}\quad 13\frac{8}{36}\quad \frac{44}{12\ 36}$

$\frac{3}{-7}\quad\frac{27}{-7}\quad\frac{27}{-7}$

$\frac{}{}\quad\frac{}{36}\quad\frac{}{36}$

$5\frac{17}{36}$

3. $+\frac{3}{5}\quad\frac{21}{}\ \frac{3}{}\times\frac{3}{}\ \frac{9}{}\ \frac{19}{}$

$-\div\ +\frac{}{16}=+=+=$

$7\ 8\quad 16\ 7\ 8\ 21\ 7\ 21\ 21\ 21\ 21$

2.9 Exercises

2. $10\frac{1}{3}\quad 10\frac{4}{12}$

$12\frac{3}{}\quad 12\frac{9}{}$

$+14\frac{4}{1}\quad +14\frac{12}{6}$

$\frac{}{}\quad\frac{2}{}\quad\frac{12}{19}$

$36\frac{19}{12}=37\frac{7}{12}$

She ran a total of $37\frac{7}{}$ miles.

$\times\ 2106$

12

4. $\frac{5}{}\times 7696$

$=\ 5\ \times$

7696

$\overline{8}$ $\overline{8}$ 1

2

4 300

8 100

8, 529, 300

405 00

5×
8 ×
962
8

×
1
5×
962

4810

4810 customers are coming in response to advertising on television or in the newspapers.

6. $4\frac{7}{8} + 1\frac{2}{3} = 4\frac{21}{24} + 1\frac{16}{24} = 5\frac{37}{24} = 6\frac{13}{24}$

$\frac{13}{24} \quad \frac{24}{13} \quad \frac{11}{24}$

Then $8 - 6\frac{}{24} = 7\frac{}{24} - 6\frac{}{24} = 1\frac{}{24}$

The notch needs to be $1\frac{11}{24}$ feet.

$115\frac{1}{2} \div 8\frac{1}{4} = \frac{231}{2} \div \frac{33}{4}$

$\frac{231}{2} \times \frac{4}{33}$

$\frac{33}{1} \times \frac{7}{1} \times \frac{2}{1} \times \frac{2}{1}$

14

He will be able to insulate 14 windows.

$1\frac{3}{4} \times 3 = \frac{7}{4} \times \frac{3}{1} = \frac{21}{4} = 5\frac{1}{4}$

10. 4 4 1 4 4

1

She will use 5 cups of flour.

$5\frac{1}{2} \times 4\frac{1}{4} = \frac{21}{4} \times \frac{9}{5} = \frac{189}{20} = 23\frac{5}{8}$

She will use $23\frac{5}{8}$ ounces of flour.

$\frac{1}{62}\frac{1}{2}\frac{29}{125}\frac{3625}{1}$

12. $7\frac{4}{8} \times 2 = 4 \times 2 = 8$ 453 8

The water weighs 453 pounds.

1

14. $1200 \times \frac{1}{10} = 120$ 1200

$1200 \times \frac{1}{3} = 400$ 720

480

$+ 1200 \times \frac{1}{6} =$

200

720

He had $480 left.

$\frac{1}{4} \times 960 = 240$

$\frac{1}{2}$ 2 2 25 2 44

b. $2 \times 12\frac{1}{2} + 2 \times 14\frac{1}{3} = 1 \times 2 + \frac{1}{1} \times 3$

$= 25 + \frac{88}{3}$

$= 25 + 29\frac{1}{3}$

$= 54\frac{1}{3}$

They will need 55 feet of molding.

$2 \times 1\frac{1}{4} = \frac{1}{4} \times \frac{5}{1} = \frac{5}{2} = 2\frac{1}{2}$

$3 \times 2\frac{3}{8} = \frac{3}{1} \times \frac{19}{8} = \frac{57}{8} = 7\frac{1}{8}$

$\frac{1}{2}$ $\frac{4}{2}$

2 8

$+ 7\frac{1}{8}$ $+ 7\frac{1}{8}$

$9\frac{5}{8}$

1 $\frac{2^8}{10}$

$14\frac{4}{8}$ $14\frac{8}{8}$ $13\frac{8}{8}$

$-9\frac{5}{8}$ $-9\frac{5}{8}$ $-9\frac{5}{8}$

$4\frac{5}{8}$

Jane will have 4 $\frac{5}{8}$ cups of flour left.

22. a. $32\frac{1}{2} \div 2\frac{1}{4} = \frac{261}{8} \div \frac{9}{4} = \frac{261}{8} \times \frac{4}{9} = \frac{29}{2}$ or $14\frac{1}{2}$

The boat is traveling at $14\frac{1}{2}$ knots.

$\frac{1}{10} \times 960 = 96$

$\frac{1}{3} \times 960 = 320$

$240 + 96 + 320 = 656$

$960 - 656 = 304$
$304 is left per week.

b. $21\frac{3}{4} \div 14\frac{1}{2} = \frac{87}{4} \div \frac{29}{2} = \frac{87}{4} \times \frac{2}{29} = \frac{3}{2}$ or $1\frac{1}{2}$

It will take the them $1\frac{1}{2}$ hours.

a. $8693\frac{1}{3} \div 1\frac{1}{3} = \frac{26,080}{3333} \div \frac{4}{1}$

a. $6 \times 12\frac{1}{2} \times 14\frac{2}{3} = \frac{6}{1} \times \frac{25}{2} \times \frac{44}{3}$

$= 25 \times 44$

$= 1100$

The carpet will cost $1100.

$26,080 \times 3$

3 4

6520

It holds 6520 barrels.

$8693\frac{1}{3} \times 1\frac{1}{3} = \frac{26{,}080}{3} \times \frac{4}{3}$

$= \frac{104{,}320}{9}$

$= 11{,}591\frac{1}{9}$

The new bin will hold 11, 591 $\frac{1}{9}$ cubic feet.

The new bin will hold 11, 591 $\frac{1}{9}$ cubic feet.

$104{,}320 \div 4 = 104{,}320 \times \frac{3}{4}$

$= \frac{313{,}080}{4}$

$8693\frac{3}{4}$

It will hold 8693 $\frac{3}{4}$ barrels.

Cumulative Review

$\frac{17}{20} = \frac{17}{20} = \frac{17-8}{20} = \frac{9}{20}$

369363636364

$\frac{1}{5} + \frac{2}{5} \times \frac{3}{10} = \frac{1}{5} + \frac{2 \times 3}{5 \times 10}$

$\frac{1}{5} + \frac{3}{10}$

$\frac{2}{10} + \frac{6}{10}$

$\frac{2+6}{10}$

$\frac{8}{10}$

$\frac{4}{5}$

27. $30 \times \frac{4}{3} = \frac{30}{1} \times \frac{14}{3} = \frac{3 \times 10}{1 \times 3} \times \frac{14}{1} =$ 140

2. $\frac{75}{8} \div \frac{603}{4} = \frac{603}{4} \times \frac{4}{9}$

$= \frac{67}{2}$ or $33\frac{1}{2}$

It can travel $33\frac{1}{2}$ miles per hour.

3. $3\frac{1}{5} + 2\frac{1}{2} + 1\frac{3}{4}$ $\qquad$ $3\frac{4}{20} + 2\frac{10}{20} + 1\frac{15}{20}$

$6\frac{29}{20} = 7\frac{9}{20}$

$7\frac{9}{20}$ miles of fence is required to enclose the field.

Career Exploration Problems

1. a. $3 \times 5\frac{3}{4} = 3 \times \frac{23}{4} = \frac{69}{4} = 17\frac{1}{4}$

Dawn should order $17\frac{1}{4}$ pounds of green beans.

$\left(3 - \frac{1}{2}\right) \left(\frac{1}{2}\right) - \frac{1}{2}$

b. $2 \times \left|6 + 8\right| = 2 \times \left|15\right| = 30$

Dawn should order 30 pounds of potatoes.

$\frac{1}{3}$ Beef chuck roast: 2×12

= 24 pounds

28. $\frac{15}{1\frac{1}{4}} \div 1\frac{5}{6} = \frac{15}{\frac{5}{4}} \div \frac{15}{\frac{16}{4}} \times \frac{4}{16} \quad \frac{3\times5\times4}{4\times4\times5} = \frac{3}{4}$

Classroom Quiz 2.9

1

$$\frac{3}{4} \quad 4\frac{1}{2}$$

Ground beef: $3\times\frac{4}{6} = 20$ pounds

$$\frac{3}{4} \quad \frac{1}{2}$$

1. $4\frac{3}{4} \times 2 = \frac{19}{4} \times \frac{3}{1} = \frac{57}{4}$ or $14\frac{1}{4}$

She ran $11\frac{1}{12}$ miles.

Green beans: $3\frac{1}{4} \times 5 = 17\frac{1}{4}$ pounds

Potatoes: $2 \times \left| 6 + 8 \right| = 30$ pounds

Total $= 24\frac{1}{2} + 20\frac{1}{4} + 17\frac{1}{4} + 30\frac{1}{2}$

$= 92\frac{2}{4}$ pounds

Dawn must order a total of $92\frac{1}{2}$ pounds of food.

d. 45 pounds + 45 pounds = 90 pounds
Yes, she will receive a discount of
$5 + $5 = $10.

a. Feet for one room = number of baseboards × length in feet + number of baseboards × length in feet $= 2 \times 20 + 2 \times 12\frac{1}{4}$

$= 40 + 24\frac{1}{4}$

$= 64\frac{1}{4}$

Each room requires $64\frac{1}{4}$ feet of baseboard.

Waste = length in feet × number of rooms

$1\frac{1}{4} \times 20$

25

Jason should include 25 feet of extra material.

Total feet = length for each room × number of rooms + extra material

$1\frac{1}{4} \times 20 + 25$

$= 1285 + 25$

$= 1310$

Jason will need a total of 1310 feet of baseboard.

Total Cost = cost per foot × number of feet

$1\frac{1}{2} \times 1310$

1965

It will cost a total of $1965 to put baseboard in all 20 rooms.

You Try It

Nine of 14 equal parts are shaded, so $\frac{9}{14}$ is shaded.

$\frac{\text{games won}}{\text{total games}} = \frac{85}{115} = \frac{5 \times 17}{5 \times 23} = \frac{17}{23}$

The team won $\frac{17}{23}$ of the games.

$60 = 2\times 2\times 3\times 5 = 2^2\times 3\times 5$

4. $= \frac{24}{80} = \frac{2\times 2\times 2\times 3}{2\times 2\times 2\times 2\times 5} = \frac{3}{2\times 5} = \frac{3}{10}$

5. $10\frac{2}{3} = \frac{10\times 3+2}{3} = \frac{30+2}{3} = \frac{32}{3}$

$= \frac{32}{3}$

$3\overline{)32}$ 9 remainder 27

$= 9\frac{1}{3}$

7. a. $\frac{2}{3}\times\frac{2}{5} = \frac{2\times 2}{3\times 5} = \frac{4}{15}$

$\frac{4}{5}\times\frac{25}{28} = \frac{4\times 5\times 5}{5\times 4\times 7} = \frac{5}{7}$

8. $2\frac{1}{2}\times 4\frac{2}{5} = \frac{5}{2}\times\frac{22}{5} = \frac{5\times 2\times 11}{2\times 5} = 11$

9. $\frac{1}{3}\div\frac{2}{5} = \frac{1}{3}\times\frac{5}{2} = \frac{1\times 5}{3\times 2} = \frac{5}{6}$

$7\frac{1}{2}\div 1\frac{1}{5} = \frac{36}{5}\div\frac{10}{5}$

$= \frac{36}{5}\times\frac{5}{10}$

$= \frac{3\times 12\times 5}{5\times 2\times 7}$

$= \frac{12}{7}\times\frac{2}{3}$

$= \frac{24}{7}$ or $3\frac{3}{7}$

11. $6 = 2\times 3$

$10 = 2\times 5$

$8 - \frac{7}{11} = \frac{8}{1} - \frac{7}{11} = 1\frac{4}{11}$

14. $\frac{1}{3}+\frac{3}{5}\quad \frac{9}{10}+\frac{1}{10}\quad \frac{3}{5}\times\frac{6}{3}+\frac{9}{10}\times\frac{3}{10}$

$\frac{3}{10}+\frac{18}{30}+\frac{27}{30}$

$\frac{10+18+27}{30}$

$= 30\frac{55}{5\times 11}$

5×6

$\frac{5}{6}$ or $1\frac{1}{6}$

15. $8\frac{5}{6}\quad 8\frac{5}{6}$

$+3\frac{1}{3}\quad +3\frac{2}{6}$

$11\frac{7}{6} = 12\frac{1}{6}$

16. $10\frac{1}{4}\quad 10\frac{5}{20}\quad 9\frac{25}{20}$

$-3\frac{4}{5}\quad -3\frac{16}{20}\quad -3\frac{16}{20}$

$6\frac{9}{20}$

17. $6\times\left(\frac{1}{2}+\frac{9}{10}\right)-\left(\frac{2}{5}-\frac{4}{10}\right)$

$= 6\times\left(\frac{1}{2}+\frac{5}{10}\right)$

$= 6\times\left(\frac{1}{2}+\frac{1}{2}\right)$

$= \frac{6}{1}\times\frac{1}{2}+\frac{1}{2}$

$= \frac{2\times 3\times 1}{2}+\frac{1}{2}$

$= 3+\frac{1}{2}$

$= 3\frac{1}{2}$

$24 = 2\times 2\times 2\times 3$

$1\times 2 \quad 2$

$= 3 + \frac{}{2}$

1

LCD$=2\times 2\times 2\times 3\times 5=$ 120

$= \frac{6}{2} + \frac{1}{2}$

$\frac{7}{}$ $\frac{1}{}$

12. $\frac{4}{6} = \frac{4\times}{} = \frac{24}{}$

$9 \quad 9 \times 6 \quad 54 \qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad = \quad \text{or } 3$

13. a. $\frac{7}{15} + \frac{1}{15} = \frac{7+1}{15} = \frac{8}{15}$

Chapter 2 Review Problems

Three out of eight equal parts are shaded. The fraction is $\frac{3}{8}$.

Five out of twelve equal parts are shaded. The fraction is $\frac{5}{12}$.

Answers will vary.

Answers will vary.

5. $\frac{\text{number defective}}{\text{total number}} = \frac{9}{80}$

$\frac{\text{number who would not}}{\text{total number}} = \frac{87}{100}$

$54 = 2 \times 27 = 2 \times 3 \times 9 = 2 \times 3 \times 3 \times 3 = 2 \times 3^3$

$120 = 10 \times 12 = 2 \times 5 \times 2 \times 2 \times 3 = 2^3 \times 3 \times 5$

$168 = 8 \times 21 = 2 \times 2 \times 2 \times 3 \times 7 = 2^3 \times 3 \times 7$

59 is prime.

$78 = 2 \times 39 = 2 \times 3 \times 13$

167 is prime.

$\frac{12}{42} = \frac{12 \div 6}{42 \div 6} = \frac{2}{7}$

$\frac{13}{13 \div 13} = \frac{1}{1}$

$\frac{27}{72} = \frac{27 \div 9}{72 \div 9} = \frac{3}{8}$

17. $\frac{168}{192} = 7\frac{168 \div 24}{192 \div 24} = 8$

18.

$\frac{63}{555} = \frac{6 \times 5 + 3}{555} = \frac{33}{111}$

$8\overline{)45}\ 5$, 40, 5

$\frac{5}{8} = 5\frac{5}{8}$

$21\overline{)100}\ 4$, 84, 16

$\frac{100}{21} = 4\frac{16}{21}$

$7\overline{)53}\ 7$, 49, 4

$\frac{53}{7} = 7\frac{4}{7}$

77

$\frac{15}{55} = \frac{5 \times 3}{5 \times 11} = \frac{3}{11}$

$3\frac{15}{55} = 3\frac{3}{11}$

24. $\frac{234}{16} = \frac{117 \times 2}{8 \times 28} = \frac{117}{112}$

$32\overline{)132}\ 4$, 128, 4

$\frac{132}{32} = \frac{4}{32} = 4\frac{1}{8}$

26. $\frac{4}{7} \times \frac{5}{11} = \frac{4 \times 5}{7 \times 11} = \frac{20}{77}$

$4 = \frac{4 \times 8 + 3}{8} = \frac{35}{8}$

$\frac{3}{8}$

3

27.

15×4

+

3 63

=

4

4

28.

7

× 21

=

1

×

7

=

7

9

35

3

5

15

12

×

3 ×

0

=

0

7

$\frac{3}{5}\times\frac{2}{7}\times\frac{10}{27}=\frac{1}{1}\times\frac{2}{7}\times\frac{2}{9}=\frac{4}{63}$

$5\frac{2}{8}\times 3\frac{1}{5}=\frac{41}{8}\times\frac{16}{5}=\frac{41}{1}\times\frac{2}{5}=\frac{82}{5}$ or $16\frac{2}{5}$

31. $36\times\frac{1}{9}\times\frac{9}{16}\times\frac{1}{1}\times\frac{16}{1}=$

$37\frac{1}{2}\times 18=\frac{301}{8}\times\frac{18}{1}=\frac{301}{4}\times\frac{9}{1}=\frac{2709}{4}=677\frac{1}{4}$

18 shares cost $677.

$13\frac{1}{2}\times 9\frac{2}{3}=\frac{27}{2}\times\frac{29}{3}=\frac{9}{1}\times\frac{29}{1}=\frac{261}{1}$ or $130\frac{1}{2}$

33. The area is $\frac{261}{2}$ or $130\frac{1}{2}$ square feet.

34. $\frac{3}{5}\div\frac{2}{15}=\frac{3}{5}\times\frac{15}{2}=\frac{9}{2}$ or $1\frac{1}{2}$

$900\div\frac{3}{5}=\frac{900}{1}\times\frac{5}{3}=1500$

$5\frac{1}{2}\div 11=\frac{23}{2}\div\frac{23}{1}=\frac{23}{2}\times\frac{2}{23}=1$

37. $20\div 2\frac{1}{2}=\frac{20}{1}\div\frac{5}{2}=\frac{20}{1}\times\frac{2}{5}=8$

42. $49=7\times 7$

$LCD=2\times 7\times 7=98$

$20=2\times 2\times 5$

$25=5\times 5$

$LCD=2\times 2\times 5\times 5=100$

$18=2\times 3\times 3$

$6=2\times 3$

$45=3\times 3\times 5$

$LCD=2\times 3\times 3\times 5=90$

$\frac{3}{5}=\frac{3}{5}\times\frac{8}{8}=\frac{24}{40}$

$\frac{7}{8}\quad\frac{8}{14}\quad\frac{4}{14}$

$\frac{11}{24}=\frac{11}{24}\times\frac{3}{3}=\frac{33}{72}$

$\frac{8}{15}\quad\frac{8}{15}\quad\frac{10}{10}\quad\frac{80}{150}$

48. $\frac{9}{14}-\frac{5}{14}=\frac{4}{14}=\frac{2}{7}$

49. $1\frac{1}{2}+\frac{1}{3}+\frac{1}{4}=\frac{3}{2}+\frac{4}{3}+\frac{3}{4}$

$\frac{6}{12}+\frac{4}{12}+\frac{3}{12}=\frac{13}{12}$ or $1\frac{1}{12}$

50. $\frac{7}{8}-\frac{3}{8}=\frac{4}{8}\times\frac{7}{5}-\frac{3}{5}\times\frac{8}{8}=\frac{35}{40}-\frac{24}{40}=\frac{11}{40}$

$0 \div 35 = 0$

39. $4\frac{2}{11} \div 3\frac{46}{11} \div \frac{3}{1} = \frac{46}{11} \times \frac{1}{3} = \frac{46}{33}$ or $1\frac{13}{33}$

40. $342 \div 28 = 1\frac{57}{2}$ $\frac{342}{1} \times \frac{}{12} = 6 \times 2 =$

$\frac{2}{12}$ $\frac{57}{}$

12 rolls are needed.

8 5 8 5 5 8 40 40 40

$+ \quad = \quad \times \quad + \quad \times$

30 21 30 7

2110

$\frac{49}{20} - +$

210 210

$\frac{69}{210}$

$= 2$

23

41. $420 \div 2\frac{1}{4} = \frac{420}{1\frac{9}{4} \div 4}$

$= 420 \times \frac{4}{1\frac{9}{4}}$

$= \frac{560}{3}$ or $186\frac{2}{3}$ calories

70

5 7 = 5 × 5 7 9 25

52. + + = × +

63 = 88 = 44

18 10 18 5 10 9 90

90 90 45

53.

–3 = 14 × 5 –3 × 3 = 70 –

= 61

2515525375

75 75

$8 - 2\frac{3}{4} = \frac{32}{4} - \frac{11}{4} = \frac{21}{4}$ or $5\frac{1}{4}$

$3 + 5\frac{2}{3} = 8\frac{2}{3}$

56. $3\frac{3}{8}$ $3\frac{3}{8}$

$+2$ $+2$

$\frac{3}{4}$ $\frac{6}{8}$

$5\frac{9}{8} = 6\frac{1}{8}$

57. $5\frac{11}{16}$ $5\frac{55}{80}$

$-2\frac{1}{5}$ $\frac{16}{39}$

$-2\frac{5}{80}$

$3\frac{39}{80}$

58. $\frac{3}{2} \times \frac{1}{5} + \frac{2}{3} \div \frac{3}{5} = \frac{3}{10} + \frac{2}{3} \times \frac{5}{3} = \frac{9}{10} + \frac{10}{9} = \frac{9}{10}$

$\times \frac{3}{5}$

$= \frac{9}{10} \times \frac{10}{9}$

$= \frac{100}{90}$

$= \frac{3}{10}$

60. $1\frac{7}{8} + 2\frac{3}{4} + 4\frac{1}{10} = 1\frac{70}{80} + 2\frac{60}{80} + 4\frac{8}{80}$

$7\frac{138}{80}$

61. $28\frac{1}{6}$ $27\frac{7}{6}$

$-1\frac{5}{6}$ $-1\frac{5}{6}$

$26\frac{2}{6} = 26\frac{1}{3}$

$26\frac{1}{3} \times 10 = \frac{79}{3} \times \frac{43}{4} = \frac{3397}{12} = 283\frac{1}{12}$

She can drive $283\frac{1}{12}$ miles.

62. $3\frac{1}{2} \times \frac{10}{3} = \frac{5}{1} \times \frac{5}{2} = 1$ cups sugar

$1\frac{1}{4} \times \frac{17}{8} = \frac{17}{4} \times \frac{17}{8} = \frac{289}{32} = 9\frac{1}{32}$

$= 2$ cups flour

63. $24\frac{1}{8} \times \frac{97}{4} = \frac{17}{4} \times \frac{1649}{8} = 206\frac{1}{8}$

He can drive approximately $206\frac{1}{8}$ miles.

$48 \div 3\frac{1}{5} = \frac{48}{1} \times \frac{5}{16} = \frac{48}{1} \times \frac{5}{16} = 15$

15 lengths can be cut from the pipe.

$15 - 6 = 15 - 6 = 9$

$4\frac{8}{8} \quad 5\frac{8}{8} \quad 8\frac{8}{8}$

$8\frac{58}{80}$

It contains $9\frac{1}{8}$ liters of water.

$8\overline{)29}$

66.
$$\begin{array}{r} 12 \\ 9 \\ +\ 14 \\ \hline 35 \end{array}$$

$35 \div 5 = 7$

$7 \times 3\frac{1}{2} = \frac{7}{1} \times \frac{65}{2} = \frac{455}{2} = 227\frac{1}{2}$

$40\frac{1}{2}$

The total number of miles is $8\frac{29}{40}$ miles.

It will take $227\frac{1}{2}$ minutes or 3 hours and $47\frac{1}{2}$ minutes.

67. $2\frac{1}{2} \times 1\frac{3}{4} = \frac{5}{2} \times \frac{7}{4} = \frac{5 \times 7}{2 \times 4} = \frac{35}{8} = 4\frac{3}{8}$

She will need $\frac{35}{8}$ or $4\frac{3}{8}$ cups of flour.

$12 \quad 8\frac{11}{8}$

$-4\frac{3}{8} \quad -4\frac{3}{8}$

$5\frac{8}{5}$

There will be 7 cups of flour left in the bag.

$1\frac{1}{2}+1\frac{1}{16}+1\frac{1}{8}+1\frac{1}{4}=1\frac{8}{16}+\frac{1}{16}+\frac{2}{16}+\frac{4}{16}=1\frac{15}{16}$

$3-1\frac{15}{16}=2\frac{16}{16}-1\frac{15}{16}=1\frac{1}{16}$

The bolt extends $1\frac{1}{16}$ inches.

$\frac{1}{10}\times 880=88$

$\frac{1}{2}\times 880=440$

$\frac{1}{8}\times 880=+110$

638

Left over: $880-638=242$

She has $242 left over.

$460\div 18\frac{2}{5}=460\div\frac{92}{5}=460\times\frac{5}{92}=25$

His car gets 25 miles per gallon.

71. $\frac{27}{63}=\frac{27\div 9}{63\div 97}=\frac{3}{7}$

72. $\frac{7}{5}+\frac{11}{25}=\frac{35}{75}+\frac{33}{75}=\frac{68}{75}$

$\frac{1}{4}\quad 12\quad 4$

$\left(\frac{4}{7}\right)^3=4\times4\times4=64$

$\frac{7}{343}$

7

76. $\frac{3}{8}\div\frac{10}{1}=\frac{3}{8}\times\frac{8}{10}=\frac{3}{1}\times\frac{1}{4}=\frac{3}{4}$ or 3

77. $5\frac{1}{2}\times 18=\frac{11}{2}\times\frac{18}{1}=\frac{11}{1}\times\frac{9}{2}=99$

$150\div 3\frac{1}{8}=\frac{150}{1}\div\frac{25}{8}=\frac{150}{1}\times\frac{8}{25}=\frac{6}{1}\times\frac{8}{1}=48$

How Am I Doing? Chapter 2 Test

$\frac{3}{5}$; 3 of the 5 parts are shaded.

2. $\frac{\text{number that went in}}{\text{total number}}=\frac{311}{388}$

3. $\frac{18}{42}=\frac{18\div 63}{42\div 67}$

4. $\frac{15}{70}=\frac{15\div 5}{70\div 5}=\frac{3}{14}$

5. $\frac{225}{50}=\frac{225\div 259}{50\div 25}=2$

6. $6\frac{4}{5}=\frac{34}{5}=6\times 5+4=34$

7. $14\overline{)145}\quad 145=10\frac{5}{14}$

73. $\frac{4}{3}\quad 12\quad 4$

$$\frac{2}{6\times 7}\times\frac{42}{12}$$

$$-2\frac{11}{}$$

$$-2\frac{11}{}$$

8. $42 \times = \times = \frac{2}{} = = 12$

$7 \quad 1 \quad 71\times 7 \quad 1$

$$\frac{}{12}$$

$3\frac{16}{12}$

$-2\frac{7}{12}\times =$

$\frac{5}{1}$ 7×2

$=$

14

9

5

9

$\times$

5

4

5

$\frac{2}{1}$

$\frac{8}{2}$

$\frac{1}{2}$

$\times$

$\frac{4}{\times}$

$\frac{3}{\times}$

$\frac{7}{}$

12

10. $2\times 5 = \times = = 14$

$34 \quad 3 \quad 4 \quad 3\times 4$

74. $\frac{36}{3\times 12} \times \frac{14}{} = \times 2\times \frac{7}{} = \frac{24}{}$

$49 \quad 33 \quad 3\times 11\times 7\times 7\ 77$

11. $\frac{7}{8} \div \frac{5}{11} = \frac{7}{8} \times \frac{11}{5} \quad \frac{7\times 11}{8\times 5} = \frac{77}{40}$ or $1\frac{37}{40}$

21. $\frac{1}{+}+\frac{3}{+}+-=\frac{7}{+}+\frac{12}{}\quad\frac{6}{}=\frac{25}{\blacksquare}$

$12\div 8=12\times 13=3\times 4\times 13=39$

31
1
3
3
1 8
3
1×2×4 62

$7\frac{1}{}\div 1\frac{1}{}=\frac{36}{}\div$

5 25 5 25
$=\frac{36}{5}\times\frac{25}{26}$
$=\frac{2\times 18\times 5\times}{5}$
$5\times 2\times 13$
$\frac{18\times 5}{13}$
$\frac{90}{13}$ or $6\frac{12}{13}$

He has 7

14. $5\frac{1}{}\div 3=\frac{36}{7}\div\frac{3}{1}=\frac{36}{7}\times\frac{1}{3}=\frac{3\times 12}{\blacksquare\times 1}=\frac{12}{7}$ or $1\frac{5}{7}$

12=2× 2×3
18=2× 3× 3
LCD=2× 2× 3× 3=36

16=2×2×2×2
24=2× 2×2× 3
LCD=2× 2× 2× 2× 3=
48

4=2×2
8=2×2×2
6=2×3
LCD=2× 2× 2× 3=24

$5\frac{5}{}=\frac{5}{}\times\frac{6}{}=$
$\frac{30}{72}$

$\frac{7}{}-5=\frac{28}{}-\frac{15}{}=$
$\frac{13}{36}$

$\frac{2}{}+5=\frac{8}{}+\frac{25}{}=\frac{33}{}=\frac{11}{}$

15 12 60 60 60 20

$\left(\frac{1}{}+\frac{1}{}\right)\times\frac{7}{}=\left(\frac{3}{}+\frac{2}{}\right)\times\frac{7}{}=\frac{5}{}\times\frac{7}{}=\frac{7}{}$ or $1\frac{1}{}$

$16\frac{1}{}\times 9\frac{1}{}=\frac{33}{}\times\frac{28}{}=11\times 14=154$ 2323

The kitchen is 154 square feet.

$\frac{2}{}\quad\frac{1}{}\quad\frac{56}{}\quad\frac{7}{}\quad\frac{56}{}\quad\frac{3}{}\quad\frac{8\times 7\times 3}{}$

27. $18\div 2=\frac{3}{}\div\frac{3}{}\quad\frac{3}{}\times\frac{7}{}3\times 7=8$

He can make 8 packages.

$\frac{9}{}-\frac{1}{}=\frac{9}{}-\frac{2}{}=\frac{7}{}$

$\frac{}{}\quad\frac{}{}$

$\frac{}{}$

$\frac{}{10}$ of a mile left to walk.

29. $4\frac{1}{}+\frac{1}{3}+\frac{3}{6}=\frac{3}{4}+\frac{4}{3}+6$

$\frac{}{8}\quad\frac{}{6}\quad\frac{}{4}\quad\frac{}{24}\quad\frac{}{24}\quad\frac{}{24}$

$13\frac{25}{24}$

$=14\frac{1}{24}$

She jogged $14\frac{}{}$ miles.

30. $\frac{1}{4}\times 120=\frac{1}{4}\times\frac{120}{1}=30$

$\frac{1}{}\times 120=\frac{1}{}\times\frac{120}{}=10$

$\frac{1}{}\times 120=\frac{12}{}\times\frac{120}{}=\frac{12}{}\times\frac{}{}=40$

3 3 1

$-30-10-40=40$

They shipped 40 oranges.

$48\frac{1}{}\div\frac{5}{}=\frac{385}{}\times\frac{8}{}=\frac{385}{}=77$

88855

They can make 77 candles.

$2\frac{1}{}\times\frac{5}{}=\frac{5}{}\times\frac{5}{}=\frac{5\times 5}{}=\frac{25}{}=\frac{9}{}$ or $1\frac{}{}$

$\frac{}{2}\quad\frac{}{8}\quad\frac{}{2}\quad\frac{}{8}\quad\frac{}{2\times 8}\quad\frac{}{16}\quad\frac{}{16}$

4 7 14 28 28 28 28

It takes $\frac{25}{}$ or $1\frac{9}{}$ pounds of wax to make one

16 16

3 4 21 20 41 6

22. $8\frac{5}{7} + 5\frac{4}{35} = 8\frac{21}{35} + 5\frac{20}{35} = 13\frac{41}{35} = 14\frac{6}{35}$ pillar candle.

$18\frac{6}{13} - 13\frac{13}{13} = 18\frac{12}{13} - 13\frac{13}{13} = 17\frac{26}{13} - 13\frac{13}{13} = 4\frac{13}{13}$

7141414141414

2 8 1 2 3 1 1 _

÷ × = × × =

93498448

Chapter 2 Pretest Form A *(cont.)*

Name: _____

Name:

Chapter 2 Pretest Form A

Date: _____

Use a fraction to represent the shaded portion of the object shown. **1.** _____

Draw a sketch to show $\frac{2}{5}$ of an object. **2.** _____

Tom bought 47 apples. Of these, six were rotten. Write a fraction that describes the proportion of apples that were rotten. **3.** _____

For problems 4 – 7, simplify each fraction.

4. $\frac{4}{24}$ **4.** _____

5. $\frac{15}{45}$ **5.** _____

6. $\frac{17}{119}$ **6.** _____

7. $\frac{125}{200}$ **7.** _____

For problems 8 – 9, change each mixed number to an improper fraction.

8. $4\frac{1}{3}$ **8.** _____

9. $7\frac{2}{9}$ **9.** _____

For problems 10 – 11, change each improper fraction to a mixed number.

10. $\frac{79}{4}$ **10.** _____

11. $\frac{41}{17}$ **11.** _____

For problems 12 – 17, multiply or divide as indicated. Simplify final answers.

12. $\frac{3}{7} \cdot \frac{1}{8}$ **12.** _____

13. $\frac{4}{11} \div \frac{33}{28}$ **13.** _____

14. $8\frac{1}{3} - 6\frac{1}{2}$ **14.** _____

15. $\frac{3}{17} \div \frac{3}{34}$ **15.** _____

Chapter 2 Pretest Form A *(cont.)*

Name: ~~Name:~~

16. $3^{\frac{3}{2}} \cdot 2^{\frac{2}{3}}$

16. _____

17. $\frac{12^{\frac{7}{8}}}{21^{\frac{7}{8}}}$

17. _____

Chapter 2 Pretest Form A *(cont.)*

Name: _____

Name:

For problems 18 – 20, find the least common denominator of the fractions listed.

18. $\frac{1}{6}, \frac{3}{4}, \frac{1}{2}$ **18.** _____

19. $\frac{2}{5}, \frac{7}{45}$ **19.** _____

20. $\frac{9}{25}, \frac{11}{15}$ **20.** _____

21. Change $\frac{5}{12}$ to an equivalent fraction with 84 as its denominator. **21.** _____

For problems 22 – 25, add or subtract as indicated. Simplify final answers.

22. $\frac{8}{15} \frac{1}{20}$ **22.** _____

23. $\frac{7}{9}\frac{15}{12}\frac{}{18}$ **23.** _____

24. $9\frac{1}{2} - \frac{}{3}$ **24.** _____

25. $2\frac{1}{6} \cdot 3\frac{5}{7}$ **25.** _____

26. Simplify: $\frac{2\,7\,5}{7\quad 9\quad 3}$ **26.** _____

27. Simplify: $\frac{2\,1\,8}{3\quad 2\quad 9}$ **27.** _____

28. Tuan and Frank set out to walk $17\frac{1}{2}$ miles from Alexandria to Manassas. During the first 5 hours, they covered $9\frac{1}{3}$ miles going from Alexandria to Bedford. How many miles are left to be covered from Bedford to Manassas? **28.** _____

29. Barbara picked $7\frac{1}{4}$ bushels of peppers. Her son picked $2\frac{1}{18}$ bushels of peppers. How much did they pick together? **29.** _____

30. A history textbook weighs $2\frac{7}{16}$ pounds. How much will a box of 24 of these textbooks weigh? **30.** _____

Chapter 2 Pretest Form B *(cont.)*

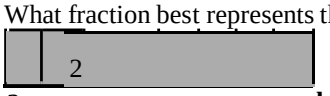
Name: _____

Name:

Chapter 2 Pretest Form B

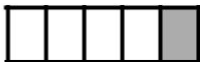
Date: _____

What fraction best represents the shaded portions of this object:



a. $\frac{2}{8}$ **b.** $\frac{5}{8}$ **c.** $\frac{1}{8}$ **d.** $\frac{1}{7}$

Which of the following objects best depicts the fraction: $\frac{3}{5}$

a.  **b.**  **c.**  **d.** 

Tom bought 43 apples. Of these, 8 were rotten. Write a fraction that bests describe to portion of apples that were rotten.

a. $\frac{43}{8}$ **b.** $\frac{8}{43}$ **c.** $\frac{1}{8}$ **d.** $\frac{1}{4}$

For problems 4 – 7, simplify each fraction.

4. $\frac{5}{35}$ **a.** $\frac{1}{35}$ **b.** $\frac{5}{7}$ **c.** $\frac{1}{5}$ **d.** $\frac{1}{7}$

5. $\frac{15}{75}$ **a.** $\frac{1}{5}$ **b.** $\frac{1}{3}$ **c.** $\frac{3}{25}$ **d.** $\frac{5}{25}$

6. $\frac{9}{207}$ **a.** $\frac{1}{90}$ **b.** $\frac{1}{23}$ **c.** $\frac{3}{19}$ **d.** $\frac{1}{19}$

7. $\frac{150}{200}$ **a.** $\frac{1}{3}$ **b.** $\frac{3}{4}$ $\frac{1}{2}$ $\frac{3}{5}$

For problems 8 – 9, change each mixed number to an improper fraction.

8. $5\frac{2}{3}$ **a.** $\frac{10}{3}$ **b.** $\frac{30}{3}$ **c.** $\frac{16}{3}$ **d.** $\frac{17}{3}$

9. $8\frac{2}{7}$ **a.** $\frac{58}{7}$ **b.** $\frac{23}{7}$ $\frac{17}{7}$ $\frac{112}{7}$

For problems 10 – 11, change each improper fraction to a mixed number.

Name: _____

10. $\frac{85}{}$

a. $21\frac{1}{}$

b. $21\frac{}{3}$

Chapter 2 Pretest Form B *(cont.)*

Name: Name:

c. $21\frac{1}{4}$

d. $22\frac{1}{4}$

11. $17\frac{43}{10}$

a. $2\frac{1}{17}$

b. $3\frac{1}{17}$

c. $2\frac{9}{17}$

d. $2\frac{11}{17}$

Chapter 2 Pretest Form B *(cont.)*

Name: _____

Name:

For problems 12 – 17, multiply or divide as indicated. Simplify final answers.

12. $\frac{5}{7} \cdot \frac{1}{6}$ **a.** $\frac{5}{42}$ **b.** $\frac{5}{13}$ **c.** $\frac{30}{7}$ **d.** $\frac{7}{30}$

13. $\frac{5}{8} \div \frac{32}{35}$ **a.** $\frac{4}{7}$ **b.** $\frac{7}{4}$ **c.** $\frac{175}{256}$ **d.** $1\frac{4}{7}$

14. $11\frac{1}{3} \cdot 4\frac{1}{2}$ **a.** $44\frac{1}{6}$ **b.** 51 **c.** $44\frac{1}{5}$ **d.** $\frac{7}{27}$

15. $34 \div 17$ **a.** $\frac{4}{12}$ **b.** 2 **c.** $\frac{4}{289}$ **d.** $\frac{1}{2}$

16. $4\frac{5}{7} \cdot 2\frac{2}{21}$ **a.** $2\frac{1}{4}$ **b.** $2\frac{1}{8}$ **c.** $\frac{175}{336}$ **d.** $1\frac{49}{50}$

17. $\frac{18}{7} \div \frac{1}{7}$ **a.** 37 **b.** 32 **c.** $\frac{2}{7}$ **d.** $\frac{2}{17}$

For problems 18 – 20, find the least common denominator of the fractions listed.

18. $\frac{1}{10}, \frac{1}{25}$ **a.** 20 **b.** 10 **c.** 15 **d.** 100

19. $\frac{2}{14}, \frac{1}{49}$ **a.** 7 **b.** 28 **c.** 98 **d.** 49

20. $\frac{3}{39}, \frac{11}{26}$ **a.** 6 **b.** 78 **c.** 117 **d.** 3

Change $\frac{7}{15}$ to an equivalent fraction with 75 as it denominator.

a. $\frac{5}{75}$ **b.** $\frac{12}{75}$ **c.** $\frac{35}{75}$ **d.** $\frac{7}{75}$

Chapter 2 Pretest Form B
Chapter 2 Test Form A *(cont.)*

Name: _____
Name: _____
Date: _____

For problems 22 – 25, add or subtract as indicated. Simplify final answers.

For problems 1 – 2, simplify each fraction.

1. $\frac{15}{65}$ **22.** $\frac{8\ 3}{15\ \ 20}$ **a.** $\frac{7}{20}$ **b.** $\frac{23}{60}$ **c.** 1 **d.** $\frac{5}{60}$

23. $\frac{2\ 5\ 7}{9\ \ 12\ \ 18}$ **a.** $\frac{7}{39}$ **b.** $\frac{5}{9}$ **c.** $\frac{5}{39}$ **d.** $\frac{7}{36}$

24. $7\ 2\frac{2}{3}$ **a.** $4\ \frac{1}{3}$ **b.** $5\ \frac{2}{3}$ **c.** $5\ \frac{1}{3}$ **d.** $4\ \frac{2}{3}$

25. $3\ \frac{1}{6}\ \ 2\ \frac{4}{7}$ **a.** $5\ \frac{5}{13}$ **b.** $5\ \frac{31}{42}$ **c.** $\frac{9}{14}$ **d.** $2\ \frac{1}{13}$

Simplify: $\frac{2\ 9\ 5}{10\ \ 9\ \ 7\ \ 3}$

a. $\frac{12}{21}$ **b.** $\frac{6}{35}$ **c.** $\frac{2}{35}$ **d.** $\frac{2}{105}$

27. Simplify: $\frac{2\ 1\ 8}{3\ \ 2\ \ 9}$

a. $\frac{1}{19}$ **b.** $\frac{1}{218}$ **c.** $\frac{1}{127}$ **d.** $\frac{1}{19}$

Tuan and Frank set out to walk the $26\frac{1}{2}$ miles from Alexandria to Lorton. During the first 5 hours, they covered $14\frac{2}{3}$ miles going from Alexandria to Bedford. How many miles are left to be covered from Bedford to Lorton?

a. $11\frac{5}{6}$ miles **b.** $9\frac{2}{3}$ miles **c.** $11\frac{1}{3}$ miles **d.** $19\frac{1}{2}$ miles

29. Barbara picked $9\frac{3}{4}$ bushels of peppers. Her son picked $2\frac{1}{18}$ bushels of peppers. How much did they pick together?

a. $\frac{2}{25}$ **b.** $\frac{25}{29}$ **c.** $\frac{29}{36}$ **d.** $\frac{36}{25}$

a. $11\frac{1}{24}$ bushels **b.** 11 bushels **c.** 7 bushels **d.** $11\frac{36}{11}$ bushels

A pallet of cement landscaping blocks weighs 4176 pounds. If a single cement block weighs $3\frac{5}{8}$ pounds, how many blocks are on the pallet?

Name: _____

Chapter 2 Pretest Form B *(cont.)*

Name: _____

a. 15,138 blocks **b.** 1392 blocks **c.** 1152 blocks **d.** 12,528 blocks

For problems 22 – 25, add or subtract as indicated. Simplify final answers.

For problems 1 – 2, simplify each fraction.

1. $\frac{15}{65}$

1. _____

Name: _____

Chapter 2 Pretest Form B *(cont.)*

Name: _____

For problems 22 – 25, add or subtract as indicated. Simplify final answers.

For problems 1 – 2, simplify each fraction.

1. $\frac{15}{65}$ **1.** _____

$\frac{54}{81}$ **2.** _____

Change $6\frac{2}{5}$ to an improper fraction. **3.** _____

Change $\frac{71}{33}$ to a mixed number. **4.** _____

For problems 5 – 8, multiply or divide as indicated. Simplify final answers.

$7 \cdot \frac{11}{15}$ **5.** _____

$10 \div \frac{12}{5}$ **6.** _____

7. $\frac{1}{54} \cdot \frac{5}{3}$ **7.** _____

$5 \div \frac{13}{15}$ **8.** _____

9. What is the LCD for $\frac{7}{16}$ and $\frac{5}{36}$? **9.** _____

10. Change $\frac{13}{24}$ to an equivalent fraction with 120 as its denominator. **10.** _____

Name _____

Chapter 2 Test Form A *(cont.)*

Chapter 2 Test Form B

Date: _____ Name: _____

For problems 11 – 15, add or subtract as indicated. Simplify final answers.
For problems 1 – 2, simplify each fraction.

11. $7\frac{1}{8} - 8\frac{5}{18}$ **11.** _____

1. $\frac{36}{60}$ **1.** _____

12. $9\frac{3}{4}$ **12.** _____

13. $\frac{1}{8} + \frac{1}{4} + \frac{1}{2}$ **13.** _____

14. $7\frac{3}{4} - 13\frac{1}{4}$ **14.** _____

15. $\frac{71}{30} \div \frac{9}{5}$ **15.** _____

16. Simplify: $\frac{5 \cdot 3 \cdot 9}{8 \cdot 4 \cdot 16}$ **16.** _____

17. Mary Ann had $\frac{5}{8}$ pound of candy. She gave $\frac{2}{3}$ of it to a friend. How much candy did she have left? **17.** _____

18. A butcher has $50\frac{3}{4}$ pounds of ground beef. He wishes to prepare it in $1\frac{1}{4}$ pound packages. How many packages can he prepare? **18.** _____

19. Jeremy bought a bolt of fabric. He sold $\frac{3}{4}$ of it to a dressmaker, gave $\frac{1}{8}$ of it to a friend, and put the rest in his store. What portion of the bolt did he put in his store? **19.** _____

20. David and Michael bought an brought home two large pizzas. David ate $\frac{3}{4}$ of a pizza, while Michael ate $\frac{3}{8}$ of a pizza. How much pizza was left for their father when he came home? **20.** _____

Name _____

Chapter 2 Test Form A *(cont.)*

Chapter 2 Test Form B

Date: _____ Name: _____

For problems 11 – 15, add or subtract as indicated. Simplify final answers.

For problems 1 – 2, simplify each fraction.

18
11. $7\frac{1}{8}\frac{5}{}$

11. _____

1. $\frac{}{60}$ 3 6

1. _____

$330\frac{77}{}$

2. _____

Change $3\frac{2}{7}$ to an improper fraction.

3. _____

Change $\frac{57}{13}$ to a mixed number.

4. _____

For problems 5 – 8, multiply or divide as indicated. Simplify final answers.

$12\ \frac{5}{4}$

5. _____

$13\ \frac{70}{26}$

6. _____

7. $\frac{2}{}\ \frac{5}{}$ $45\ 5\ 6$

7. _____

8. $1\frac{11}{14}\ \frac{1}{2}\ \frac{}{7}$

8. _____

19 11

9. What is the LCD for $\frac{}{34}$ and $\frac{}{24}$?

9. _____

$\frac{12}{}$

10. Change $\frac{}{25}$ to an equivalent fraction with 125 as its denominator.

10. _____

Name: _____

Chapter 2 Test Form B *(cont.)*

Chapter 2 Test Form C

Date: _____

Name:

For problems 11 – 15, add or subtract as indicated. Simplify final answers.

11. $9\frac{2}{5}-1\frac{1}{4}$ **11.** _____

12. $4\frac{1}{9}+12\frac{2}{15}$ **12.** _____

13. $13-7\frac{5}{8}$ **13.** _____

14. $\frac{2}{5}\cdot 2\frac{1}{35}$ **14.** _____

15. $1\frac{9}{20}$ **15.** _____

16. Simplify: $\frac{7}{8}\div\frac{1}{4}\cdot\frac{2}{3}$ **16.** _____

17. A rectangular flowerbed measures $9\frac{1}{2}$ feet by $4\frac{1}{4}$ feet. Find the area of the bed in square feet. **17.** _____

18. How many $\frac{3}{4}$ ounce seed packets can be prepared from $88\frac{1}{2}$ ounces of marigold seeds? **18.** _____

19. Jeff bought two cords of firewood. He gave $\frac{1}{2}$ to his minister, and $\frac{7}{8}$ cord to his brother. How much firewood was left? **19.** _____

20. Katie is making chocolate chip cookies. Her recipe calls for $\frac{5}{8}$ cup sugar, but Katie wants to multiply the recipe so that she will get $1\frac{1}{2}$ times as many cookies. How much sugar should she use? **20.** _____

Chapter 2 Test Form B *(cont.)*

Chapter 2 Test Form C

Name:_____

Name: _____

Date:_____

For problems 11 – 15, add or subtract as indicated. Simplify final answers.

For problems 1 – 2, simplify each fraction.

1. $\frac{30}{96}$ **11.** $9\frac{2}{5}-1\frac{1}{4}$

$\frac{110}{280}$

11. _____

1.

2. _____

3. Change $4\frac{3}{8}$ to an improper fraction.

3. _____

Change $\frac{77}{17}$ to a mixed number.

4. _____

For problems 5 – 8, multiply or divide as indicated. Simplify final answers.

$11 \cdot 1\frac{5}{13}$

5. _____

$19 \div \frac{10}{3}$

6. _____

$4\frac{1}{2} \cdot 1\frac{13}{14}$

7. _____

8. $\frac{1}{64} \div \frac{5}{15}$

8. _____

What is the LCD for $\frac{7}{35}$ and $\frac{8}{60}$?

9. _____

10. Change $\frac{8}{35}$ to an equivalent fraction with 315 as its denominator.

10. _____

Name: _____

Chapter 2 Test Form C *(cont.)*

Chapter 2 Test Form D Date: _____

Name:

For problems 11 – 15, add or subtract as indicated. Simplify final answers.

11. $4\frac{1}{10} - 1\frac{3}{10}$ **11.** _____

12. $\frac{1}{8} + \frac{1}{2} + \frac{1}{5}$ **12.** _____

13. $11\frac{1}{8} - 5\frac{5}{8}$ **13.** _____

14. $4\frac{1}{5} - 11\frac{3}{8}$ **14.** _____

15. $\frac{15}{8} \times \frac{6}{5}$ **15.** _____

16. Simplify: $\frac{5}{6} \div \frac{3}{4} \times \frac{9}{10}$ **16.** _____

17. A hallway measures $8\frac{2}{5}$ feet by $16\frac{3}{8}$ feet. Find the area of the hallway in square feet. **17.** _____

18. Tim wants to parcel out 60 pounds of dry dog food into $3\frac{1}{3}$ pound packages. How many packages can he make? **18.** _____

19. Victoria purchased a crate of strawberries. She gave $\frac{1}{3}$ of them to friends at work and $\frac{3}{8}$ of them to her sister. She froze the rest. What part of the crate did she freeze? **19.** _____

20. A carpenter has a board that is $10\frac{3}{16}$ inches long. He needs a piece of wood that is $7\frac{5}{8}$ inches long. How long will the remaining piece be? **20.** _____

Name: _____

Name: _____

Date: _____

Chapter 2 Test Form C *(cont.)*

Chapter 2 Test Form D

For problems 1 – 2, simplify the fraction.

1. $\frac{42}{98}$

a. $\frac{4}{7}$ **b.** $\frac{3}{7}$ **c.** $\frac{3}{8}$ **d.** $\frac{7}{9}$

2. $\frac{16}{38}$

a. $\frac{8}{9}$ **b.** $\frac{16}{38}$ **c.** $\frac{4}{9}$ **d.** $\frac{8}{19}$

3. Change $2\frac{5}{7}$ to an improper fraction.

a. $\frac{14}{7}$ **b.** $\frac{37}{7}$ **c.** $\frac{19}{7}$ **d.** $\frac{19}{5}$

Change $18\frac{65}{}$ to a mixed number.

a. $3\frac{11}{18}$ **b.** $3\frac{1}{18}$ **c.** $3\frac{10}{18}$ **d.** $4\frac{1}{18}$

For problems 5 – 8, multiply or divide as indicated. Simplify final answers.

5. $\frac{4}{7} \cdot \frac{3}{11}$

a. $\frac{12}{77}$ **b.** $\frac{33}{28}$ **c.** $\frac{7}{77}$ **d.** $\frac{12}{18}$

6. $\frac{6}{10} \cdot \frac{12}{7}$

a. $\frac{36}{35}$ **b.** $\frac{20}{7}$ **c.** $\frac{15}{35}$ **d.** $\frac{7}{20}$

7. $5\frac{1}{7} \div 3\frac{1}{9}$

a. $15\frac{1}{63}$ **b.** $1\frac{32}{49}$ **c.** $3\frac{9}{63}$ **d.** $\frac{16}{39}$

8. $6\frac{3}{7} \div 1\frac{13}{14}$

a. $12\frac{39}{98}$ **b.** $6\frac{6}{13}$ **c.** $3\frac{1}{3}$ **d.** $6\frac{39}{98}$

9. What is the LCD for $\frac{11}{21}$ and $\frac{31}{45}$?

a. 945 **b.** 315 **c.** 66 **d.** 105

Change $8\frac{7}{}$ to an equivalent fraction with 56 as its denominator.

a. $\frac{}{56}$ **b.** $\frac{}{56}$ **c.** $\frac{}{56}$ **d.** $\frac{49}{56}$

a. $\frac{55}{56}$

b. $\frac{42}{56}$ $\frac{4}{8}$

c. $\frac{56}{56}$

Name: _____

Chapter 2 Test Form D *(cont.)*

Chapter 2 Test Form E Date: _____ Name: _____

For problems 11 – 15, add or subtract as indicated. Simplify final answers.

11. $7\frac{3}{14}$

a. $14\frac{8}{2}$ **b.** $14\frac{11}{2}$ **c.** $7\frac{4}{2}$ **d.** $21\frac{8}{5}$

12. $5\frac{4}{2}$

a. $9\frac{7}{1}$ **b.** $20\frac{7}{1}$ **c.** $17\frac{7}{3}$ **d.** $9\frac{7}{4}$

13. $12\frac{2}{5}$

a. $5\frac{1}{10}$ **b.** $\frac{7}{10}$ **c.** $\frac{7}{10}$ **d.** $\frac{7}{10}$

14. $2\frac{3}{5}$

a. $\frac{21}{4}$ **b.** $\frac{25}{9}$ **c.** $\frac{13}{20}$ **d.** $\frac{5}{12}$

15. $7\frac{3}{9}$

a. $\frac{57}{9}$ **b.** $\frac{7}{39}$ **c.** $\frac{7}{29}$ **d.** $\frac{5}{49}$

16. Simplify $\frac{1115}{2\ 3\ \ 4}$

a. $\frac{1}{38}$ **b.** $\frac{53}{90}$ **c.** $\frac{2}{9}$ **d.** $\frac{8}{75}$

A rectangular garden measures $6\frac{1}{5}$ yards by $9\frac{1}{2}$ yards. What is the area of the garden?

a. $62\frac{15}{19}$ sq. yd. **b.** $32\frac{1}{4}$ sq. yd. **c.** $54\frac{5}{16}$ sq. yd. **d.** $58\frac{9}{10}$ sq. yd.

18. A landscape designer had $50\frac{2}{3}$ pounds of seeds that she wishes to parcel into packages of $\frac{2}{3}$ pound each. How many packages can she make?

a. 76 packages **b.** $33\frac{7}{9}$ packages **c.** 50 packages **d.** 60 packages

19. Maggie bought a crate of oranges. She gave $\frac{1}{3}$ of the crate to friends, and $\frac{1}{2}$ of the crate to family. What portion of the crate did she have left?

a. $\frac{3}{5}$ crate **b.** $\frac{5}{6}$ crate **c.** $\frac{1}{6}$ crate **d.** $\frac{2}{5}$ crate

20. Dave jogged $6\frac{1}{2}$ miles on Monday, $3\frac{1}{4}$ miles on Tuesday, and $3\frac{1}{4}$ miles on Wednesday. What is his total

mileage for these three days?

a. $14\frac{1}{}$ miles **b.** $12\frac{1}{}$ miles **c.** 13 miles **d.** $13\frac{1}{}$ miles

Chapter 2 Test Form D *(cont.)*

Name:_____

Name: _____

Date:_____

Chapter 2 Test Form E

For problems 1 – 2, simplify the fraction.

1. $\frac{26}{130}$

a. $\frac{1}{7}$ **b.** $\frac{1}{5}$ **c.** $\frac{1}{13}$ **d.** $\frac{1}{4}$

2. $\frac{68}{140}$

a. $\frac{1}{2}$ **b.** $\frac{2}{35}$ **c.** $\frac{17}{25}$ **d.** $\frac{17}{35}$

3. Change $2\frac{5}{14}$ **to an improper** $\frac{33}{35}$

a. $\frac{33}{14}$ **b.** 28 $\frac{30}{14}$ $\frac{35}{14}$

Change $11\frac{1}{2}$ to a mixed number.

a. $3\frac{1}{11}$ **b.** $2\frac{13}{11}$ $3\frac{2}{11}$ $3\frac{3}{11}$

For problems 5 – 8, multiply or divide as indicated. Simplify final answers.

5. $\frac{3}{5} \cdot \frac{9}{10}$

a. $\frac{27}{25}$ **b.** $\frac{12}{50}$ **c.** $\frac{12}{15}$ $\frac{27}{50}$

6. $2\frac{1}{5} \div 5\frac{31}{5}$

a. $\frac{52}{5}$ **b.** $\frac{11}{31}$ **c.** $\frac{31}{11}$ **d.** $\frac{341}{25}$

7. $6\frac{3}{14} \div 3\frac{1}{9}$

a. $9\frac{1}{42}$ **b.** $5\frac{1}{9}$ **c.** $19\frac{1}{3}$ $18\frac{1}{42}$

8. $7\frac{7}{9} \cdot 2\frac{8}{21}$

a. $1\frac{68}{93}$ **b.** $5\frac{8}{27}$ **c.** $18\frac{14}{27}$ $3\frac{4}{15}$

What is the LCD for $\frac{11}{28}$ and $\frac{17}{49}$?

a. 945 **b.** 1372 **c.** 196 98

Change $\frac{7}{16}$ to an equivalent fraction with 256 as its denominator.

a. $\frac{112}{256}$ $\frac{49}{256}$ **b.** ___

Name:_____
Name: _____
Date:_____

247
256

98
256

c.

Chapter 2 Test Form E *(cont.)*

Chapter 2 Test Form F

Name:_____

Name: _____

Date:_____

For problems 11 – 15, add or subtract as indicated. Simplify final answers.

11. $8\frac{5}{6} - 3\frac{7}{9}$

a. $9\frac{11}{18}$ **b.** $11\frac{12}{15}$ **c.** $19\frac{5}{9}$ **d.** $9\frac{2}{3}$

12. $\frac{1}{3} + \frac{1}{5} + \frac{1}{6}$

a. $\frac{11}{30}$ **b.** $\frac{3}{14}$ **c.** $\frac{7}{10}$ **d.** $\frac{3}{30}$

13. $\frac{7}{8} \cdot \frac{2}{5}$

a. $\frac{5}{40}$ **b.** $\frac{5}{8}$ **c.** $\frac{19}{40}$ **d.** $\frac{5}{3}$

14. $4\frac{5}{6} - 13\frac{2}{3}$

a. $18\frac{5}{6}$ **b.** $18\frac{1}{2}$ **c.** $18\frac{1}{6}$ **d.** $17\frac{1}{2}$

15. $\frac{1}{15} \div \frac{2}{9}$

a. $\frac{6}{13}$ **b.** $\frac{3}{2}$ **c.** $\frac{5}{9}$ **d.** $\frac{23}{45}$

16. Simplify $\frac{7}{8} \cdot \frac{3}{4} \cdot \frac{5}{6}$

a. $\frac{1}{4}$ **b.** $\frac{5}{48}$ **c.** $\frac{1}{12}$ **d.** $\frac{5}{6}$

Monica had 3 pound of candy. She gave $\frac{2}{3}$ of it to Leann. How much candy did she give to Leann?

a. $\frac{15}{8}$ pound **b.** $\frac{1}{2}$ pound **c.** $\frac{7}{20}$ pound **d.** $\frac{8}{15}$ pound

How many $2\frac{1}{2}$ pound packages of peanuts can be prepared from $12\frac{1}{2}$ pounds of peanuts?

a. $6\frac{1}{4}$ packages **b.** 12 packages **c.** 25 packages **d.** 6 packages

19. Jared bought a bushel of apples. He gave $\frac{1}{4}$ to his brothers and $\frac{1}{5}$ to the mailman. What portion of the bushel did he have left?

a. $\frac{11}{20}$ bushel **b.** $\frac{9}{9}$ bushel **c** $\frac{9}{29}$ bushel **d.** $\frac{2}{9}$ bushel

Chapter 2 Test Form E *(cont.)*

Name:_____

Name: _____

Date:_____

Chapter 2 Test Form F

Midway High School has a track for runners that is one-quarter mile in length. Sheila ran a total of 11 times around the track. Her sister Nancy ran 25 laps around the track. How much further did Nancy run than Sheila?

a. $3\frac{1}{}$ miles **b.** $3\frac{1}{}$ miles **c.** $2\frac{1}{}$ miles **d.** 4 miles

Chapter 2 Test Form E *(cont.)*

Name:_____

Name: _____

Date:_____

Chapter 2 Test Form F

For problems 1 – 2, simplify the fraction.

1. $\frac{18}{48}$

a. $\frac{3}{6}$ **b.** $\frac{3}{8}$ **c.** $\frac{1}{3}$ $\frac{1}{7}$

2. $\frac{17}{70}$

a. $\frac{17}{70}$ **b.** $\frac{17}{30}$ **c.** $\frac{3}{70}$ **d.** $\frac{7}{70}$

Change $4\frac{3}{7}$ to an improper fraction.

$\frac{43}{7}$ **b.** $\frac{12}{7}$ $\frac{31}{3}$ $\frac{31}{7}$

Change $\frac{71}{12}$ to a mixed number.

a. $5\frac{7}{12}$ **b.** $5\frac{11}{12}$ $4\frac{7}{12}$ $5\frac{5}{12}$

For problems 8 – 9, multiply or divide as indicated. Simplify final answers.

5. $\frac{2}{5} \cdot \frac{7}{23}$

a. $\frac{14}{115}$ **b.** $-\frac{14}{28}$ **c.** $\frac{9}{115}$ $\frac{24}{115}$

6. $\frac{9}{11} \div \frac{13}{7}$

a. $\frac{117}{77}$ **b.** $\frac{63}{143}$ **c.** $\frac{53}{117}$ $\frac{63}{133}$

7. $1\frac{7}{18} \cdot 2\frac{7}{10}$

a. $\frac{5}{39}$ **b.** $2\frac{23}{36}$ **c.** $3\frac{3}{4}$ $\frac{49}{2\,180}$

8. $8\frac{1}{15} \div 2\frac{13}{21}$

a. $\frac{8}{2163}$ **b.** $4\frac{7}{65}$ **c.** $\frac{2}{77}$ $3\frac{2}{25}$

9. What is the LCD for $\frac{9}{49}$ and $\frac{11}{48}$?

a. 98 **b.** 144 **c.** 336 **d.** 2352

Change $\frac{11}{12}$ to an equivalent fraction with 156 as its denominator.

a. $\frac{132}{}$ **b.** $\frac{155}{}$ **c.** $\frac{143}{}$ **d.** $\frac{154}{}$

Chapter 2 Test Form E *(cont.)*

Name:_____

Date:_____

156

Chapter 2 Test Form F

Name: _____

156

156

For problems 11 – 15, add or subtract as indicated. Simplify final answers.

11. $6\frac{12}{13}\ 1\frac{1}{2}$

a. $7\frac{5}{26}$ **b.** $7\frac{11}{26}$ **c.** $3\frac{12}{13}$ $10\frac{5}{13}$

12. $18\ 7\frac{1}{4}$

a. $10\frac{1}{2}$ **b.** $10\frac{1}{4}$ **c.** $11\frac{3}{4}$ $10\frac{3}{4}$

13. $8\frac{3}{4}\ 12\frac{1}{5}$

a. 12 **b.** $\frac{14}{24}$ **c.** $\frac{9}{24}$ $\frac{1}{24}$

14. $11\frac{1}{4}\ 6\frac{3}{4}$

a. $5\frac{1}{4}$ **b.** $4\frac{3}{4}$ **c.** $5\frac{1}{4}$ $4\frac{1}{2}$

15. $34\frac{1}{4}\ \frac{1}{3}$

a. $7\frac{7}{12}$ **b.** $7\frac{5}{12}$ **c.** $7\frac{2}{7}$ $8\frac{7}{12}$

Simplify $\frac{9\ 3\ 6}{5\ \ 8\ \ 4\ \ 5}$

a. 16 **b.** $\frac{9}{2}$ **c.** 40 $\frac{9}{20}$

17. Janie had a large bag of candy. She gave $\frac{1}{3}$ of it to her coworkers, $\frac{1}{2}$ of it to her mother, and took the rest home. What portion of the bag did she take home?

a. $\frac{5}{6}$ bag **b.** $\frac{2}{5}$ bag **c.** $\frac{3}{5}$ bag **d.** $\frac{1}{6}$ bag

How many $\frac{2}{3}$ ounce packages of spices can be prepared from 100 ounces of spices?

a. $66\frac{2}{3}$ packages **b.** 100 packages **c.** 300 packages **d.** 150 packages

Tom built a rectangular kennel measuring $20\frac{1}{2}$ feet by 25 feet. What is the area of the kennel?

a. 91 sq. ft. **b.** $512\frac{1}{2}$ sq. ft. **c.** $587\frac{1}{2}$ sq. ft. **d.** 510 sq. ft.

20. Ethan bought a $12\frac{1}{2}$-ounce bag of peanuts. His sister Anna bought $7\frac{3}{5}$-ounce bag of peanuts. How many

ounces of peanuts do the two siblings have altogether?

a. $4\frac{9}{10}$ ounces **b.** $19\frac{4}{7}$ ounces **c.** $20\frac{1}{10}$ ounces **d.** $19\frac{3}{10}$ ounces

ChaCphtearpst1e–r22CTuemstuFlaotrivme TFe(sctontN.a)me: Name:

Form A

Date:

1. Add: 2953
467
381

1. ___

2. Subtract: 49,108
2,559

2. ___

3. Multiply: 3 10 4 8

3. ____

4. Divide: 6 9408

4. ____

5. Write in exponent form: 7 7 7 7 7

5. ____

6. Round to the nearest hundred: 25,738

6. _____

7. Perform the operations the proper order:
$3^2 4\ 7\ 4\ 5^2 15\ 3$

7. _____

8. Amy drove from Chicago to Washington, a distance of 450 miles. She started with a full tank of gas. In Washington, she filled her tank again, and it needed 12 gallons. How many miles per gallon did her car get?

8. _____

9. Thirty-five fraternity brothers rented a bus for a ski trip fora total cost of $539. How much did each one pay?

9. _____

10. A biology class consists of 8 freshmen, 12 sophomores, and 5 juniors. What fractional part of the class are not freshmen?

10. _____

Form A *(cont.)*

Simplify: $\frac{96}{280}$

11. _____

12. $\frac{1}{5}\ \frac{1}{3}\ \frac{1}{10}$

12. _____

Subtract: $10\frac{5}{2}-2\frac{7}{69}$

13. _____

Multiply: $1\frac{3}{8}\times 2\frac{3}{5}$

14. _____

15. Divide: $\frac{5}{7}\div 2\frac{3}{4}$

15. _____

16. What is the LCD of $\frac{9}{14}$ and $\frac{5}{21}$?

16. _____

A rectangular kennel measures $26\frac{1}{2}$ feet by $20\frac{1}{4}$ feet. Find the area of the kennel in square feet.

17. _____

How many $\frac{3}{5}$-ounce packages of spices can be prepared from 75 ounces of the spices?

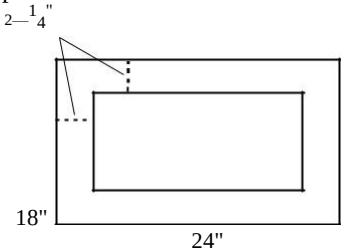
18. _____

Christy bought a large bag of candy. She gave $\frac{1}{5}$ of it to her $\frac{1}{2}$ brother, $\frac{1}{3}$ to her mother, and took the rest home. What part of the bag did she take home?

19. _____

A frame that is 18 inches by 24 inches has a mat in it that is $2\frac{1}{4}$ inches all around. What are the dimensions of the picture within the mat?

20. _____



ChaCphtearpst1e–rs21C–u2mCulmatuivlaetTiveestTeNsatme: Name:

Form B

Date:

1. Add: 4216 + 3191 + 578

a. 7915 **b.** 7985 **c.** 7965 **d.** 7875

2. Subtract: 2318 − 1499

a. 819 **b.** 1181 **c.** 881 **d.** 829

3. Multiply: 2359

a. 275 **b.** 225 **c.** 360 **d.** 270

4. Divide: $8\overline{)60,328}$

a. 52,541 **b.** 7541 **c.** 8893 **d.** 8041

5. Write in exponent form: 5 5 5 5

a. 5^2 **b.** 5 4 **c.** 5^4 **d.** 4^5

6. Round to the nearest thousand: 35,709

a. 35,700 **b.** 35,000 **c.** 36,000 **d.** 35,710

Perform each operation in the proper order: 5^2 2 10 3^2 2 20 4

a. 87 **b.** 18 **c.** 114 **d.** 529

Professor Ranjan corrected some final exams, and it took him $5\frac{1}{4}$ hours. His teaching assistant corrected the rest of the exams, and it took her $8\frac{5}{6}$ hours. How many hours total did it take to correct all the exams?

a. $14\frac{1}{12}$ hours **b.** $14\frac{5}{6}$ hours **c.** $13\frac{3}{5}$ hours **d.** $13\frac{3}{10}$ hours

David ran the Boston Marathon, 26 miles, in $3\frac{1}{2}$ hours. What was his average rate of speed?

a. $7\frac{1}{2}$ miles per hour **b.** $7\frac{4}{7}$ miles perhour **c.** $7\frac{3}{8}$ miles per hour **d.** $7\frac{3}{7}$ miles perhour

Michael is a math tutor who charges $25 per hour. Last month he made $1075 tutoring. How many total hours did he work as a tutor?

a. 53 hours **b.** 403 hours **c.** 45 hours **d.** 43 hours

11. Simplify: $\frac{822}{56}$

a. $\frac{28}{56}$

b. $\frac{411}{28}$

c. $\frac{411}{56}$

d. $\frac{411}{14}$

Chapters 1–2 Cumulative Test Form B *(cont.)*

Name: _____

12. Add: $3\frac{1}{2} + 7\frac{3}{4}$

a. $10\frac{3}{4}$ **b.** $10\frac{6}{8}$ **c.** $10\frac{13}{21}$ **d.** $10\frac{2}{21}$

13. Subtract: $16\frac{1}{8} - 5\frac{3}{4}$

a. $10\frac{3}{8}$ **b.** $11\frac{1}{2}$ **c.** $3\frac{1}{4}$ **d.** $12\frac{1}{8}$

14. Multiply: $12 \cdot 2\frac{5}{3}$

a. 19 **b.** $29\frac{1}{5}$ **c.** $9\frac{1}{5}$ **d.** $29\frac{1}{5}$

15. Divide: $2\frac{1}{3} \div 3\frac{1}{4}$

a. $6\frac{27}{28}$ **b.** $\frac{60}{91}$ **c.** $1\frac{2}{5}$ **d.** $\frac{2}{3}$

What is the least common denominator of $\frac{4}{50}$ and $\frac{1}{15}$?

a. 50 **b.** 5 **c.** 150 **d.** 750

A rectangular garden measures $4\frac{7}{8}$ yards by $9\frac{3}{4}$ yards. Find the area of the garden in square yards.

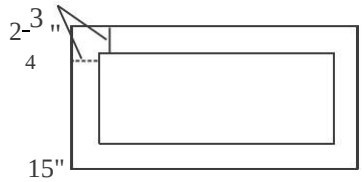
a. $5\frac{7}{8}$ sq. yds. **b.** $36\frac{7}{32}$ sq. yds. **c.** $45\frac{3}{32}$ sq. yds. **d.** $8\frac{5}{8}$ sq.yds.

How many $\frac{3}{4}$-pound packages of meat can be prepared from 60 pounds of meat?

a. 80 packages **b.** 45 packages **c.** 60 packages **d.** 50 packages

19. Martha bought a bolt of fabric. She gave $\frac{1}{3}$ of it to her daughter and $\frac{2}{5}$ of it to her neighbor. What portion of the bolt did she have left?

a. $\frac{13}{15}$ bolt **b.** $\frac{2}{5}$ bolt $\frac{12}{15}$ bolt $\frac{4}{15}$ bolt



A picture frame is 15 inches by 20 inches. A mat that is $\frac{3}{4}$ inches wide all around is used to enclose a painting. What are the dimensions of the painting within the mat?

a. $12\frac{1}{4}$ by $4\frac{1}{4}$ **b.** $9\frac{1}{2}$ by $2\frac{1}{4}$ $4\frac{3}{4}$ by $4\frac{3}{4}$ $11\frac{1}{4}$ by $4\frac{1}{4}$

Chapter 3 Pretest Form A

Name:_____

Date:_____

Write a name for the decimal: 32.925 **1.** _____

Express as a decimal: $\frac{437}{10,000}$ **2.** _____

Write 8.13 as a mixed number in reduced form. **3.** _____

Write 0.625 as a fraction in reduced form. **4.** _____

Place the set of numbers in the proper order from smallest to largest: 3.5, 3.49, 3.51, 3.501 **5.** _____

Round 723.7612to the nearest tenth. **6.** _____

Round 41.30753 to the nearest thousandth. **7.** _

_

Add:6.31
5.9
9.04
7.4 **8.**

Add: 65.102 0.532 9.38 **9.** _

Subtract: 39.17
12.69 **10.** _

Subtract: 89 23.417 **11.** _

Multiply:22.13 0.004 **12.** _

Multiply: 5.8703 1000 **13.** _

Multiply: 0.0007293 10^4 **14.** _

Divide: 0.03 0.04167 **15.** _

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Understanding Whole Numbers

Learning Objectives:

Write numbers in expanded form and in standard notation.
Write whole numbers in standardnotation.
Write a word name for a number and write a number for a word name.
Read numbers in tables.
Key vocabulary: *whole numbers, decimal system, digits, period, scientific notation.*

Examples:

1. Write each number in expandednotation.
   a) 8516 b) 244,306 c) 77,079,101 d) 845,333,129

   Write each number in standard notation.
   e) 400 + 30 + 2 f) 60,000 + 4,000 + 300 + 20 + 9 g) 500,000 + 40 + 1

2. Identify the place value of each digit in the numbers.
   a) 3,654 b) 265,812 c) 56,203,411

3. Write a word name for each number.
   a) 325 b) 60,448 c) 9,542,006

   Write a number for each word name.
   two hundred fifty-three
   seven thousand, ninety-eight
   three hundred forty million, one hundredthirty-two

4. Use the following table to answer the questions.

Number of Spectators (in 1000s) During Regular Season

	2002	**2004**	**2006**
Major League Baseball	67,859	73,023	76,043
NCAA Basketball	38,928	40,777	40,843
National Hockey League	20,615	20,356	20,854

How many spectators did Major League Baseball have during the 2006 season?
During which year did the National Hockey League have the fewest spectators?
How many spectators did NCAA Basketball have in 2002?

Teaching Notes:

Students who do not have English as their first language might need extra help learning the number period vocabulary such as ones, thousands, millions, billions, etc. Refer them to the ***Place-value Chart*** in the textbook.

Some students who do not have English as their first language are accustomed to using periods instead of commas as above.

Be sure to remind students that *and* represents the decimal point when writing names of numbers and should not be used when writing names for whole numbers.

In writing word names, use commas the same way you do when writing numbers (to separate periods).

Answers: 1a) 8000+500+10+6, b) 200,000+40,000+4000+300+6,c)70,000,000+7,000,000+70,000+9000+ 100+1, d) 800,000,000+40,000,000+5,000,000+300,000+30,000+3000+100+20+9, e) 432, f) 64,329, g) 500,041; 2a) 3-thousands,6-hundreds,5-tens,4-ones, b) 2-hundred thousands,6-ten thousands,5-thousands,8-hundreds,1-ten, 2-ones, c) 5-ten millions,6-millions,2-hundred thousands,3-thousands,4-hundreds, 1-tens,1-ones; 3a) three hundred twenty-five, b) sixty thousand, four hundred forty-eight, c) nine million, five hundred forty-two thousand, six, d) 253, e) 7,098, f) 340,000,132; 4a) 76,043,000, b) 2004, c) 38,928,000

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Adding Whole Numbers

Learning Objectives:

Master basic addition facts.
Add several single digit numbers.
Add several-digit numbers when carryingis not needed.
Add several-digit numbers when carrying isneeded.
Review the properties of addition.
Apply addition to real-life situations.
Key vocabulary: *addends, sum, identity property of zero, commutative property ofaddition, associative property of addition*.

Examples:

1. Add.

a) 5 3 b) 4 7 c) 8 9 d) 6 2 e) 3 3

Add.

6+4+3+7 b) 8 + 8 + 0 + 5 c) 3 9 5 76

Add with no carrying required.

a) 53 b) 1123 c) 40, 001 d) 1,362,811

12 345 32, 442 4, 537, 026
15,333

4. Add with carrying required.

a) 96 b) 5678 c) 6505 d) 5,935, 734
47 3574 173 3,002,167
7044 8,475,279

168

5. Add, then check by reversing the order.

305 b) 893
18 27
231 5
654 62
136

a) Angie went shopping for her son's graduation party. She spent $375 on food, $187 on paper goods, and $172 on decorations. What is the total amount she spent on the party?

A quality control inspector checks batches of plasma televisions for defects. In October, 12,317 televisions passed inspection and 37 were defective. In November, 14,592 televisions passed inspection and 128 were defective. In December, 13,744 televisions passed inspection and 95 were defective. How many televisions passed inspection during the three month period? How many were inspected?

Teaching Notes:

Some students need to practice basic addition facts at home in order to master them. The use of flash cards to review addition facts can behelpful.
Some students need to write the carry digit in order to get the right answer for addition with carrying.
Remind students to add from right toleft.
Remind students to check their work by adding in the reverse order.

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Answers: 1a) 8, b) 11, c) 17, d) 8, e) 6; 2a) 20, b) 21, c) 30; 3a) 65, b) 1468, c) 87,776, d) 5,899,837; 4a) 143, b) 9252, c) 13,890, d) 17,413,180; 5a) 1208, b) 1123; 6a) $734, b) 40,653; 40,913

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