Solution Manual for College Mathematics 9th Edition by Cleaves Hobbs ISBN 0136116329 9780136116325

Full link download:

Test Bank:

Solution Manual:

Chapter One

Review of Basic Concepts

f **CHAPTER REVIEW EXERCIS ES**

2. (a) $\dfrac{75}{1,000} = 0.075$

Since the denominator is 1,000, th e last digit of the numerator is in th e thousandths place.

(b) $\dfrac{21}{10} = 2.1$

Since the denominator is 10, th e last digit of the numerator is in th e tenths place.

(c) $\dfrac{652}{100,000} = 0.00652$

Since the denominator is 100,000, the last digit of th e nume rator is in the hundred- thousandths place.

4. (a) 98 The rounded an swer is 100. (b) 94 The rounded an swer is 90.
(c) 25,786 The rounded an swer is 26,000. (d) 0.0736 The rounded an swer is 0.07.
(e) 7. 93 The rounded an swer is 8. (f) 1 .876 The rounded an swer is 2.

6. smaller: 0.83   0.825
          n   n

Compare each place valu e, left to right, until two digits in the same place value are different, an d comp are those digits.

0.83 > 0.825 0.825 is smaller.

8 .   larger: 4.831   4.820

            n n

     4.831 > 4.820

4.831 is larger. The 1.023 in. part is smaller and has been

10.   smaller: 1.023   1.03

             n n

     1.023 < 1.03

mach in ed mo re.

165

12. (a) 6.2 + 32.7 + 46.82 + 0.29 + 4.237

$$
\begin{array}{r}
2\,2\,1 \\
6.200 \\
32.700 \\
46.820 \\
0.290 \\
\underline{4.237} \\
90.247
\end{array}
$$

(b) 86.3 + 9.2 + 70.02 + 3 + 2.7

The decimal point in a whole number is at th e en d.

$$
\begin{array}{r}
1\,2\,1 \\
86.30 \\
9.20 \\
70.02 \\
3.00 \\
\underline{+\ 2.70} \\
171.22
\end{array}
$$

14.

Estimate Exact

$$
\begin{array}{rr}
1\,2\,1\,1 & \\
60 & 57.32 \\
70 & 74.26 \\
\underline{+\ 200} & \underline{+\ 174.85} \\
330 & \$\ 306.43
\end{array}
$$

16.

(a)

Estimate	Ex act
12, 300	12, 346.87
4,5 00	4,468.63
7, 800	7 , 878.24

(b)

Estimate	Ex act
3, 50	3, 49 5
3,10 0	3,090
40 0	40 5

(c)

Estimate	Exact
6, 800	6, 767
500	478
6, 300	6, 289

(d)

Estimate	Ex act
30 0	293.86
10 0	148.00
20 0	145.86

18.

$$
\begin{array}{rr}
 & 0\,9\,9\,9\,10 \\
75 & 100.00 \\
\underline{+\ 25} & \underline{12.75} \\
100 & 87.\,5
\end{array}
$$

The famil y cle ared $87.25 on the two ite ms sold.

20. A = E B

A = 4.86 in.   1.972 in.

A = 2.888 in .

22. C = D E

C = 3.7 in. 1.6 in.

C = 2.1 in.

24. 6 (3)(2)(4) = 18(2)(4) = 3 6(4) = 14 4

$$\begin{array}{cc} \overset{1}{18} & \overset{2}{36} \\ \text{u } 2 & \text{u } 4 \\ \hline 36 & 144 \end{array}$$

26. $\frac{1}{12}$

$$\begin{array}{c} \overset{+2}{236} \\ \text{u } 244 \\ \hline ^{++}944 \\[4pt] 944 \\ 472 \\ \hline 57{,}584 \end{array}$$

28.

$$\begin{array}{c} \overset{2}{3}6 \\ 32 \\ \text{u } 39 \\ \hline \overset{1}{2}\,9\,43 \\ 1\overset{}{2},7\overset{}{5}\,3 \\ 9\,81 \\ \hline \end{array}$$

The bookstore received $12,753 for the books.

30.

$$\begin{array}{c} \overset{1}{\$\,1\,12} \\ \text{u } 10\,5 \\ \hline 560 \\ 112 \\ \hline \$11,760 \end{array}$$

The dealer took in $11,760 on the sale.

32. Estimate   Exact

$$\begin{array}{cc} 30 & \$\,3\,3.25 \\ \text{u } 40 & \text{u } 37 \\ \hline 12\,00 & \overline{232\,75} \\ & 997\,5 \\ \hline & \$1,\,230.25 \end{array}$$

The sound system installer was paid $1,230.25.

34. Estimate Exact Check

A l u *w*   *A l* u *w*

200 u 100   234 .6 u 12

20, 000   3.2

             28, 902 .7 2

$$\begin{array}{cc} 234.6 & 123\,.2 \\ \text{u } 123.2 & \text{u } 234\,.6 \\ \hline 4\quad 2 & 73\,92 \\ 70 & 492\,8 \\ 4\,6\,92 & 3\,696 \\ 23\,4\,6 & 24\,64 \\ \hline 2\,8,\,902\,.7 & 28,\,9 \\ 2 & 02.72 \end{array}$$

The ar ea of the field is 28,903 ft^2.

36. 178.6 u 0.28 u 5

$$\begin{array}{c} \overset{1\,1\,1}{}\overset{6\,6\,4}{} \\ 178.6 \\ \text{u } 0.2\,8 \\ \overset{1\,1\,1}{} \\ 14\,28\,8 \\ 35\,7\,2 \\ \hline 50\,.0\,0\,8 \end{array}$$

$$\begin{array}{c} 50.008 \\ \text{u } 5 \\ \hline 250\,.0 \quad \text{or } 250\,.04 \\ 40 \end{array}$$

The employee earns $250.04.

38. 29.25 y 0 .36

```
        81R 9
          |
0.36 29.25
     288
      45
      36
       9
```

40. 364.8 y 6

```
       60.8
6 364.8
   36
    4
    0
   48
   48
    0
```

42. 10,160 y 20

```
        508
20 10, 16 0
     100
      16
       0
     160
     160
       0
```

44. 56 y 7 8

The band will have 8 me mb e r s in each row.

46. averag e, near es t cent (hundredth)

```
  2 2 3 2
$ 74.98
  23.72
  51.27
 125.36

+ 85.93 1 2
$ 361.26
```

```
72.252  | $72.25
5 3 61.2
   60
   35
   11
   10

   1 0
   26
   25
   12
   10 ᵛ
```

48. (a) base o 5 $^{6\, m\, exponent}$

$5^6 = 5 × 5 × 5 × 5 × 5 × 5 =$

(b) 15,625 base o 1.2 $^{2\, m\, exponent}$

(c) $1.2^2 = 1.2 × 1.2 = 1.44$

50. (a) $\sqrt{2,500} = 50$ since $50 × 50 = 2,500$

(b) $\sqrt{1.44} = 1.2$ since $1.2 × 1.2 = 1.44$

(c) $\sqrt{}$

(d) $\sqrt{81} = 9$ sin ce $9 × 9 = 81$

calculator options: 81 $\sqrt{}$ $\boxed{}$

52. (a) $3 × 1\,00 = 300$ (b) $7\,5 × 10,000 = 750,000$ (c) $2.2 × 1,000 = 2,200$ (d) $5 × 1\,00 = 500$ (e) 4 $0.6 × 10 = 406$

54. $2 + 3^{\sim} \; 3 \, y \, 3 =$ Multiply.

$2 + 9 \, y \, 3 =$ Divide.

$2 + 3 =$ Add.

5

56. 18 ⟌ y 6 3   Divide.

                 Subtract.

          3 3

            0

58.

$82 + 4 \div 2 \times 5 =$	Divide and multiply from left to right.
$82 + 2 \times 5 =$	Multiply.
$82 + 10 =$	Add.
92	

60.

$15 - 6 \cdot 2 + 3 =$	Multiply.
$15 - 12 + 3 =$	Add and subtract from left to right.
$3 + 3 =$	Add.
6	

62.

$24 \div 4 - 18 \div 6 =$	Divide from left to right.
$6 - 3 =$	Subtract.
3	

64.

$26 + 8 \div 2 - 3 \cdot 3 =$	Divide and multiply from left to right.
$26 + 4 - 9 =$	Add and subtract from left to right.
$30 - 9 =$	Subtract.
21	

66.

$\sqrt{12.25} \cdot (4 - 2) + 8 =$	Do operations within parentheses first.
$\sqrt{12.25} \cdot 2 + 8 =$	Evaluate square root.
$3.5 \cdot 2 + 8 =$	Multiply.
$7 + 8 =$	Add.
15	

68.

$2^4 \div 2 - \sqrt{10 - 1} =$	Do operation in grouping (square root).
$2^4 \div 2 - \sqrt{9} =$	Evaluate exponentiation and square root from left to right.
$16 \div 2 - 3 =$	Divide.
$8 - 3 =$	Subtract.
5	

70.

$4 + \dfrac{8.6}{2}(2) =$	Divide.
$4 + 4.3(2) =$	Multiply.
$4 + 8.6 =$	Add.
12.6	

72. $8^2 - (3-1.5)(5.2) =$ Do operation inside parentheses.
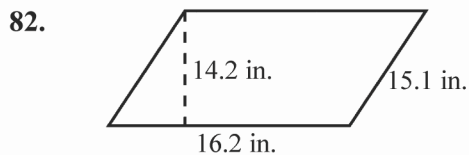
               $8^2 - 1.5(5.2) =$ Evaluate exponentiation.

               $64 - 1.5(5.2) =$ Multiply.

               $64 - 7.8 =$ Subtract.

                      56.2

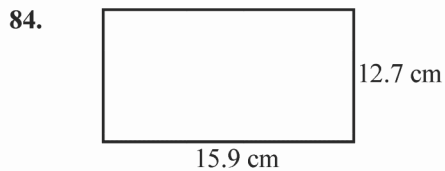**74.** $5.13 \div (6.2 - 4.3) + 8.6 =$ Simplify grouping.

          $5.13 \div 1.9 + 8.6 =$ Divide.

                $2.7 + 8.6 =$ Add.

                      11.3

76. $7,460,174,000 \div 194,582 = \$38,339.48669; \$38,339$ (rounded)

78. $(42 + 68 + 72 + 96) \div 4 =$ **80.** $(78 + 72 + 86 + 88 + 90 + 85 + 82) \div 7 =$
                $278 \div 4 =$ $581 \div 7 =$
                    69.5 $83°$
              or 70 (rounded)

82. $P = 2(b + s)$
                                                 $P = 2(16.2 + 15.1)$
          14.2 in.   15.1 in. $P = 2(31.3)$
                                                 $P = 62.6$ in.
               16.2 in.

84. $P = 2(l + w)$
                                                 $P = 2(15.9 + 12.7)$
                          12.7 cm $P = 2(28.6)$
                                                 $P = 57.2$ cm
               15.9 cm

86. $P = 4s$
                2.5 ft $P = 4(2.5)$
                        $P = 10$ ft
          2.5 ft

88. $P = 4s$
                       $P = 4(6)$
                6 in. $P = 24$ in.

          6 in.
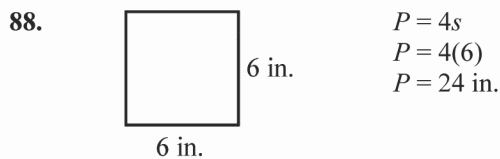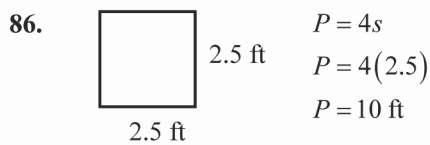
90. $P = 4s$

          $P = 4(15.5 \text{ ft})$

          $P = 62$ ft
          $62 - 4 = 58$ ft of fencing

92. $A = bh$

14.2 in.

15.1 in.

16.2 in.
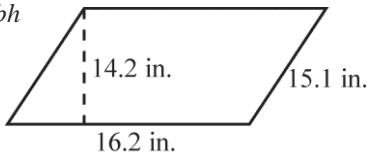
$A = 16.2(14.2)$

$A = 230.04$ in^2

94. $A = lw$

12.7 cm

15.9 cm

$A = 15.9(12.7)$

$A = 201.93$ cm^2

96.
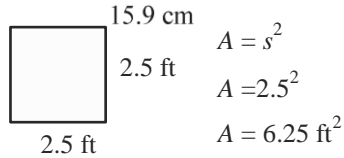
2.5 ft

2.5 ft

$A = s^2$

$A = 2.5^2$

$A = 6.25$ ft^2

98. $A = lw$

$A = 25(8)$

$A = 200$ ft^2

$A_{2\ walls} = 2(200) = 400$ ft^2

100.

$A_{doorway}$ lw

7 (6)

42 ft^2

A_{front} lw

20(12)

240 ft^2

A_{brick} 240   42   198 ft^2

$$\frac{198\ \cancel{ft}^2}{1\ 1\ \cancel{ft}}\left(\frac{6\ bricks}{\cancel{ft}^2}\right) = 1{,}188\ bricks$$

Chapter 1 Concepts Analysis

1. $1.2 + n = 1.7$

$n = 1.7$ 1.2

$n = 0.5$

2. $5 \cup n = 4.5$

$n = 4.5$ y 5

$n = 0.9$

3. $\sqrt{n} = 6$

$n = 6^2$

$n = 36$

4. 7 (3 1) z (7   3) 1

7 2 z 4 1

5 z 3 2 $^{z\ 2}$

Answ er s may

vary

5. 6 y 12 z 12 y 6

1

—

Answ er s may vary

6. 1. Perform operations within parentheses (or other grouping symbols) beginning with th e
    innermost set of parentheses.

2. Ev aluate ex ponential operations and find sq uare roots in order from left to right.

3. Multiply and divide in order from left to right.

4. Add and subtract in order from left to right.

7. $2.5 + 4.9 = \begin{array}{r} \overset{1}{2.5} \\ + 4.9 \\ \hline 7.4 \end{array}$ $5 + 9 = 14$
Write 4 in the WHQWKV column
 and carry the 1 to the XQLWV
 column.
$1 + 2 + 4 = 7$

8. The order of operations states that mu ltiplica tion mu st be done <u>before</u> addition. $2 + 5(4) =$
$2 + 20 =$
$2 2$

9. $9\ 81\ \sqrt{}$ Wrong because $9^2 \quad 8\ 1$.
Fin d $?^2 = 9$ to get 9 .
On some calculators: $\sqrt{}\ 9$
$\boxed{\sqrt{}}$ $\boxed{}$

$\sqrt{9}\ 3$ Correct

10. Addition requires the decimals to be in a vertical line, so similar place valu es ar e added, just as with whole numbers.

11. No, perfect sq uares have an even number of decimal places.

12. Yes, th e number of decimal places in a perfect cube is a mu ltiple of th ree, and 8 is a perfect cube.

13. No, an y decimal mu ltiplied times itself will have twice as many decimal places.
$(0.1^2 = 0.01\ ,\ 0.1\ 1^2 = 0.0121,\ 0.111^2 = 0.012321,\ \text{etc.})$

Chapter 1 Practice Test

2. nearest hundred th 4.0 1 8   **4.** nearest cent $4.\ 8\ 3\ \underline{4}$

4.0 2 (rounded up (hundredth s) $4.83 (rounded since 8 is five or mo re)
down since 4 is

less th an 5)

6. $\begin{array}{r} \overset{12}{} \\ \overset{5\ 11\ 4\ 2\ 12}{\$\ 61,532} \\ 47,245 \\ \hline \$\ 14,287 \end{array}$

8. $\begin{array}{r} \$2,\ 133\ .3\ 3 \\ 12\overline{)25,\ 600.00} \\ \underline{24} \\ 1\ 6 \\ \underline{1\ 2} \\ 40 \\ 36 \\ \overline{40} \\ 36 \\ \overline{4\ 0} \\ 3\ 6 \\ \overline{40} \\ 36 \\ \overline{4} \end{array}$

10. $46 \text{ u } 10^3$ $46,000$

12.

$5^3 (3 \cdot 2) \u 9 \sqrt{\ }$ Do operation within parentheses first.

$5^3 5 \u 9 \sqrt{\ }$ Evaluate exponentiation an d square root from left to right.

12 5 5 \u 3   Multiply.

125 15   Subtract.

110

14. Estimate: Exact: **16.** 17 [1]

3 00 $335

\u 5 0   \u 45

$ 15, 0 00   1 675

            13 40

            $15, 0

            75

\u 2

34

The professo r should give 34 points

to th e stud en t.

The to tal cost is $15,075.

18.

     1.11

25 $\overline{)27.75}$

      $\underline{25}$

      27

      $\underline{25}$

      25

      $\underline{25}$

      0

20. 52.38 y 10 ,0 00 = 005 2.38 = 0.0 052 38 **22.** Estimate, nearest whole number

         3.85 4

     $\underline{+ 7.46 + 7}$

           11

24.   1.485   1.485

     $\underline{0.010}$ $\underline{0.010}$

     1.475   1.495

The limit dime nsions of the part are
1.475 in. to 1.49 5 in.

26.   7.96

     $\underline{\u \ 16}$

     47 76

     $\underline{79 \ 6}$

     127.36

The length of steel required is 127.36 ft.

28. $l = 18 .5$ ft

     $w = 2.5$ ft

     $P = 2 l + 2 w$

     $P = 2(18.5 \text{ ft}) + 2(2.5 \text{ ft})$

     $P = 37 \text{ ft} + 5 \text{ ft}$

     $P = 42 \text{ ft}$

     $A = lw$

     $A = 18.5 \text{ ft}(2.5 \text{ ft})$

$$A = 46.25 \text{ ft}^2$$