

Solutions to Odd-Numbered Problems

CHAPTER 1

ARITHMETIC OF WHOLE NUMBERS

Preview 1

1. (a) Two hundred fifty thousand, three hundred seventy-four
(b) 1,065,008
3. (a) $67 + 58 = 125$ (b) $7009 + 1598 = 8607$
5. (a)
$$\begin{array}{r} 64 \\ \times 37 \\ \hline 448 \\ 192 \\ \hline 2368 \end{array}$$
 (b)
$$\begin{array}{r} 305 \\ \times 243 \\ \hline 915 \\ 1220 \\ 610 \\ \hline 74115 \text{ or } 74,115 \end{array}$$
 (c)
$$\begin{array}{r} 908 \\ \times 705 \\ \hline 4540 \\ 63560 \\ \hline 640140 \text{ or } 640,010 \end{array}$$
7. $680 - 235 = 455$ lb finished weight
9. (a) $6 + 9 \times 3 = 6 + 27 = 33$
(b) $35 - 14 \div 7 = 35 - 2 = 33$
(c) $56 \div 4 \times 2 + 9 - 4 = 14 \times 2 + 9 - 4 = 28 + 9 - 4 = 33$
(d) $(23 - 7) \times 24 \div (12 - 4) = 16 \times 24 \div 8 = 384 \div 8 = 48$

Exercises 1-1 Reading, Writing, Rounding, and Adding Whole Numbers.

A.

1. Three hundred fifty-seven
3. Seventeen thousand, ninety-two
5. Two million, thirty-four
7. Seven hundred forty thousand, one hundred six
9. One hundred eighteen million, one hundred eighty thousand, eighteen
11. 3006
13. 11,100
15. 4,040,006
17. 360
19. 4000
21. 230,000

B.

1. 70
3. 80
5. 123
7. 132
9. 393
11. 1390
13. 1009
15. 861
17. 9461
19. 11,428
21. 25,717
23. 11,071
25. 175,728
27. 663,264

C.

1. 1042 3. 2442 5. 7083 7. 6352
 9. 6514 11. 64 13. 55 15. 357
 17. 1,166,040

D.

1.
$$\begin{array}{r} 387 \text{ ft} \\ 913 \\ 76 \\ 2640 \\ + 845 \\ \hline 4861 \text{ ft} \end{array}$$
3.
$$\begin{array}{r} 346 \\ 275 \\ 84 \\ 128 \\ 325 \\ 98 \\ 260 \\ + 120 \\ \hline 1636 \text{ screws} \end{array}$$
5.
$$\begin{array}{r} 78 \\ 428 \\ 143 \\ 96 \\ + 384 \\ \hline 1129 \text{ minutes} \end{array}$$
7. (a)
$$\begin{array}{r} 420 \\ 260 \\ 875 \\ 340 \\ 558 \\ 564 \\ 280 \\ + 310 \\ \hline 3607 \text{ watts} \end{array}$$
- (b)
$$\begin{array}{r} 875 \\ 564 \\ + 558 \\ \hline 1997 \text{ watts} \end{array}$$
- (c)
$$\begin{array}{r} 260 \\ 280 \\ + 310 \\ \hline 850 \text{ watts} \end{array}$$
9.
$$\begin{array}{r} 1205 \\ 865 \\ 742 \\ + 257 \\ \hline 3114 \text{ bricks} \end{array}$$
11.
$$\begin{array}{r} \$ 499 \\ 249 \\ 369 \\ + 79 \\ \hline \$ 1196 \end{array}$$
13.
$$\begin{array}{r} 520 \\ 1160 \\ 49 \\ + 1200 \\ \hline 2929 \text{ ohms} \end{array}$$
15.
$$\begin{array}{r} 485 \\ 74 \\ 251 \\ + 146 \\ \hline 756 \text{ grams} \end{array}$$
17.
$$\begin{array}{r} 1400 \\ 1800 \\ 600 \\ + 100 \\ \hline 3900 \text{ W} \end{array}$$
19. (a)
$$\begin{array}{r} 1172 \\ 1054 \\ 915 \\ + 1123 \\ \hline 4264 \text{ points} \end{array}$$
- (b)
$$\begin{array}{r} 1264 \\ 776 \\ + 987 \\ \hline 3027 \text{ points} \end{array}$$
- (c)
$$\begin{array}{r} 4264 \\ + 3027 \\ \hline 7291 \text{ points} \end{array}$$

E.

1.
$$\begin{array}{r} 35244 \\ + 61775 \\ \hline \end{array}$$
 97001 kHz or 97,001 kHz
3. (a) \$307,225 (b) \$732,813 (c) \$2,298,502 (d) \$7156
5. (a) Total feet of each kind
 11,453 ft of #12 BHD
 258 ft of #TX
 12,715 ft of 410 AAC
 8792 ft of 110 ACSR
 7425 ft of 6B
- (b) Total feet installed at each location
 3530 ft at A3
 8412 ft at A4
 4294 ft at B1
 5482 ft at B5
 5073 ft at B6
 6073 ft at C4
 7779 ft at C5

Exercises 1-2 Subtraction of Whole Numbers**A.**

- | | | | | | |
|-------|-------|-------|-------|-------|-------|
| 1. 6 | 3. 2 | 5. 4 | 7. 3 | 9. 3 | 11. 8 |
| 13. 9 | 15. 9 | 17. 3 | 19. 8 | 21. 7 | 23. 7 |
| 25. 0 | 27. 8 | 29. 6 | 31. 6 | 33. 5 | 35. 4 |

B.

- | | | | | |
|---------|----------|------------|----------|------------|
| 1. 13 | 3. 12 | 5. 15 | 7. 38 | 9. 46 |
| 11. 25 | 13. 189 | 15. 281 | 17. 408 | 19. 273 |
| 21. 574 | 23. 2809 | 25. 12,518 | 27. 4741 | 29. 47,593 |

C.

1.
$$\begin{array}{r} \$ 486 \\ - 27 \\ \hline \end{array}$$
 \$ 459
3.
$$\begin{array}{r} 3540 \text{ ft} \\ - 1782 \\ \hline \end{array}$$
 1758 ft
5.
$$\begin{array}{r} \$ 1206512 \\ - 875977 \\ \hline \end{array}$$
 \$ 330535 or \$330,535
7. The 4 drums contain $72 + 45 + 39 + 86 = 242$ liters
 3 drums contain $97 + 115 + 74 = 286$ liters
 The total volume of the 3 drums is greater by $(286 - 242) = 44$ liters.
9.
$$\begin{array}{r} 238 \\ - 64 \\ \hline \end{array}$$
 174 gal
11.
$$\begin{array}{r} 22000 \\ - 14250 \\ \hline \end{array}$$
 7750 impressions
13.
$$\begin{array}{r} 20000 \\ - 6500 \\ \hline \end{array}$$
 13500 ohms or 13,500 ohms
15.
$$\begin{array}{r} 1350000 \\ - 850000 \\ \hline \end{array}$$
 500000 Hertz or 500,000 Hertz

$$\begin{array}{r}
 17. \quad 8823 \\
 - 8701 \\
 \hline
 122 \text{ HCF}
 \end{array}$$

$$\begin{array}{r}
 19. \quad \text{Hyundai Sonata:} \\
 \$ 23219 \\
 + 8410 \\
 \hline
 \$ 31629 \\
 - 8629 \\
 \hline
 \$ 23000 \text{ or } 23,000
 \end{array}$$

$$\begin{array}{r}
 \text{Sonata Hybrid:} \\
 \$ 25784 \\
 + 6426 \\
 \hline
 \$ 32210 \\
 - 9053 \\
 \hline
 \$ 23157 \text{ or } \$23,157
 \end{array}$$

Therefore, the Sonata costs less than the Sonata Hybrid by \$157.

D.

$$\begin{array}{l}
 1. \quad \text{Total mileage of each} \\
 \quad \# 1 \quad 60,027 - 58,352 = 1675 \\
 \quad \# 2 \quad 43,302 - 42,135 = 1167 \\
 \quad \# 3 \quad 78,007 - 76,270 = 1737 \\
 \quad \# 4 \quad 41,322 - 40,006 = 1316 \\
 \quad \# 5 \quad 10,002 - 08,642 = 1360 \\
 \quad \# 6 \quad 35,700 - 35,401 = 299 \\
 \quad \# 7 \quad 80,101 - 79,002 = 1099 \\
 \quad \# 8 \quad 40,122 - 39,987 = 135 \\
 \quad \# 9 \quad 11,671 - 10,210 = 1461 \\
 \quad \# 10 \quad 73,121 - 71,040 = 2081 \\
 \quad \text{Total mileage of all} = 12330 \text{ or } 12,330
 \end{array}$$

$$\begin{array}{r}
 3. \quad \$28245 \\
 - 3814 \\
 \hline
 \$24431 \text{ or } 24,431
 \end{array}$$

$$5. \quad (a) \quad \text{Balance A} = \$2065$$

$$\begin{array}{r}
 (b) \quad \$ 6375 \\
 6375 - 379 = 5996 \\
 5996 + 1683 = 7679 \\
 7679 + 474 = 8153 \\
 8153 + 487 = 8640 \\
 8640 - 2373 = 6267 \\
 6267 - 1990 = 4277 \\
 4277 - 308 = 3969 \\
 3969 - 1090 = 2879 \\
 2879 - 814 = 2065
 \end{array}$$

Exercises 1-3 Multiplication of Whole Numbers

A.

- | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|------|-----|------|-----|------|-----|------|
| 1. | 42 | 3. | 48 | 5. | 63 | 7. | 54 | 9. | 45 | 11. | 296 |
| 13. | 576 | 15. | 320 | 17. | 290 | 19. | 416 | 21. | 792 | 23. | 1404 |
| 25. | 282 | 27. | 720 | 29. | 5040 | 31. | 1938 | 33. | 4484 | 35. | 3822 |

B.

$$\begin{array}{r}
 1. \quad 305 \\
 \times 123 \\
 \hline
 915 \\
 610 \\
 305 \\
 \hline
 37515 \\
 \text{or } 37,515
 \end{array}$$

$$\begin{array}{r}
 3. \quad 8043 \\
 \times 37 \\
 \hline
 56301 \\
 24129 \\
 \hline
 297591 \\
 \text{or } 297,591
 \end{array}$$

$$\begin{array}{r}
 5. \quad 3706 \\
 \times 102 \\
 \hline
 7412 \\
 37060 \\
 \hline
 378012 \\
 \text{or } 378,012
 \end{array}$$

$$\begin{array}{r}
 7. \quad 684 \\
 \times 45 \\
 \hline
 3420 \\
 2736 \\
 \hline
 30780 \\
 \text{or } 30,780
 \end{array}$$

$$\begin{array}{r}
 9. \quad 2008 \\
 \times 198 \\
 \hline
 16064 \\
 18072 \\
 2008 \\
 \hline
 397584 \\
 \text{or } 397,584
 \end{array}$$

$$\begin{array}{r}
 11. \quad 809 \\
 \times 9 \\
 \hline
 7281
 \end{array}$$

$$\begin{array}{r}
 13. \quad 500 \\
 \times 50 \\
 \hline
 25000 \\
 \text{or } 25,000
 \end{array}$$

$$\begin{array}{r}
 15. \quad 7009 \\
 \times 504 \\
 \hline
 28036 \\
 350450 \\
 \hline
 3532536 \\
 \text{or } 3,532,536
 \end{array}$$

$$\begin{array}{r}
 17. \quad 316 \\
 \times 32 \\
 \hline
 632 \\
 948 \\
 \hline
 10112 \\
 \text{or } 10,112
 \end{array}$$

$$\begin{array}{r}
 19. \quad 807 \\
 \times 111 \\
 \hline
 807 \\
 807 \\
 807 \\
 \hline
 89577 \\
 \text{or } 89,577
 \end{array}$$

C.

$$\begin{array}{r}
 1. \quad \$ 75 \\
 \times 40 \\
 \hline
 \$ 3000
 \end{array}$$

$$\begin{array}{r}
 3. \quad 65 \\
 \times 20 \\
 \hline
 1300 \text{ ft}
 \end{array}$$

$$\begin{array}{r}
 5. \quad 50 \\
 \times 18 \\
 \hline
 400 \\
 50 \\
 \hline
 900
 \end{array}$$

$$\begin{array}{r}
 100 \\
 \times 16 \\
 \hline
 1600
 \end{array}$$

$$\begin{array}{r}
 500 \\
 \times 11 \\
 \hline
 500 \\
 500 \\
 \hline
 5500
 \end{array}$$

$$\begin{array}{r}
 900 \\
 1600 \\
 + 5500 \\
 \hline
 8000 = \text{total envelopes}
 \end{array}$$

$$\begin{array}{r}
 7. \quad 27 \\
 \times 2 \\
 \hline
 54 \\
 \times 45 \\
 \hline
 270 \\
 216 \\
 \hline
 2430 \text{ parts}
 \end{array}$$

$$\begin{array}{r}
 9. \quad 60 \\
 \times 4 \\
 \hline
 240 \\
 \times 5 \\
 \hline
 1200 \text{ bolts}
 \end{array}$$

$$\begin{array}{r}
 11. \quad 850 \\
 \times 9 \\
 \hline
 7650 \text{ cards}
 \end{array}$$

$$\begin{array}{r}
 13. \quad 60 \\
 \times 24 \\
 \hline
 240 \\
 120 \\
 \hline
 1440 \text{ min}
 \end{array}$$

$$\begin{array}{r}
 1440 \\
 \times 16 \\
 \hline
 8640 \\
 1440 \\
 \hline
 23040 \text{ screws or } 23,040 \text{ screws}
 \end{array}$$

$$\begin{array}{r}
 15. \quad 23 \\
 \times 5 \\
 \hline
 115 \text{ in. (or } 9 \text{ ft } 7 \text{ in.)}
 \end{array}$$

$$\begin{array}{r}
 17. \quad 850 \\
 \times 25 \\
 \hline
 4250 \\
 1700 \\
 \hline
 21250 \text{ ohms or } 21,250 \text{ ohms,} \\
 \text{No}
 \end{array}$$

$$\begin{array}{r}
 19. \quad 170 \\
 \times 220 \\
 \hline
 000 \\
 340 \\
 340 \\
 \hline
 37400 \text{ bu or } 37,400 \text{ bu}
 \end{array}$$

$$\begin{array}{r}
 21. \quad 96 \\
 \times 5 \\
 \hline
 480 \text{ A}
 \end{array}$$

$$\begin{array}{r}
 23. \quad 176 \\
 \times 500 \\
 \hline
 000 \\
 000 \\
 880 \\
 \hline
 88000 \text{ mL or } 88,000 \text{ mL}
 \end{array}$$

$$\begin{array}{r}
 25. \quad \$ 16 \\
 \times 40 \\
 \hline
 00 \\
 64 \\
 \hline
 \$ 640
 \end{array}$$

$$\begin{array}{r}
 \$ 640 \\
 \times 52 \\
 \hline
 1280 \\
 3200 \\
 \hline
 \$ 33280 \text{ or } \$33,280
 \end{array}$$

$$\begin{array}{r}
 27. \quad 250 \\
 \times 60 \\
 \hline
 000 \\
 1500 \\
 \hline
 15000 \text{ gal/hr or } 15,000 \text{ gal/hr}
 \end{array}$$

$$\begin{array}{r}
 15000 \\
 \times 2 \\
 \hline
 30000 \text{ gal or } 30,000 \text{ gal}
 \end{array}$$

D.

$$\begin{array}{l}
 1. \quad \$873 \times 365 = \$318,645 \\
 \$1,000,000 - 318,645 = \$681,355
 \end{array}$$

$$\begin{array}{r}
 3. \quad (a) \quad 111,111,111 \\
 222,222,222 \\
 333,333,333
 \end{array}$$

$$\begin{array}{r}
 (b) \quad 111,111 \\
 222,222 \\
 333,333
 \end{array}$$

$$\begin{array}{r}
 (c) \quad 1 \\
 121 \\
 12,321 \\
 1,234,321 \\
 123,454,321
 \end{array}$$

$$\begin{array}{r}
 (d) \quad 42 \\
 4422 \\
 444,222 \\
 44,442,222 \\
 4,444,422,222
 \end{array}$$

$$\begin{array}{l}
 5. \quad 8 \text{ hours/day} \times 5 \text{ days/week} = 40 \text{ hours/week} \\
 \text{Alpha} \quad 117 \times \$ 6 \times 40 = \$ 28,080 \\
 \text{Beta} \quad 67 \times \$17 \times 40 = \$ 45,560 \\
 \text{Gamma} \quad 29 \times \$32 \times 40 = \$ 37,120 \\
 \text{Delta} \quad 37 \times \$49 \times 40 = \$ 72,520 \\
 \text{Tau} \quad 18 \times \$78 \times 40 = \$ 56,160
 \end{array}$$

Exercises 1-4 Division of Whole Numbers**A.**

$$1. \quad \begin{array}{r} 9 \\ 7 \overline{)63} \\ \underline{63} \end{array}$$

$$3. \quad \text{Not defined}$$

$$5. \quad \begin{array}{r} 10 \text{ r}1 \\ 7 \overline{)71} \\ \underline{7} \\ 01 \\ \underline{0} \\ 1 \end{array}$$

$$7. \quad \begin{array}{r} 8 \\ 4 \overline{)32} \\ \underline{32} \end{array}$$

$$\begin{array}{r} 6 \\ 9 \overline{)54} \\ \underline{54} \end{array}$$

9.

$$\begin{array}{r} 23 \text{ r}6 \\ 7 \overline{)167} \\ \underline{14} \\ 27 \\ \underline{21} \\ 6 \end{array}$$

11.

$$\begin{array}{r} 51 \text{ r}4 \\ 6 \overline{)310} \\ \underline{30} \\ 10 \\ \underline{6} \\ 4 \end{array}$$

13.

$$\begin{array}{r} 21 \\ 7 \overline{)147} \\ \underline{14} \\ 07 \\ \underline{7} \end{array}$$

15.

$$\begin{array}{r} 37 \\ 6 \overline{)222} \\ \underline{18} \\ 42 \\ \underline{42} \end{array}$$

17.

$$\begin{array}{r} 23 \\ 14 \overline{)322} \\ \underline{28} \\ 42 \\ \underline{42} \end{array}$$

19.

$$\begin{array}{r} 39 \\ 24 \overline{)936} \\ \underline{72} \\ 216 \\ \underline{216} \end{array}$$

21.

$$\begin{array}{r} 9 \text{ r}1 \\ 81 \overline{)730} \\ \underline{729} \\ 1 \end{array}$$

23.

$$\begin{array}{r} 22 \\ 31 \overline{)682} \\ \underline{62} \\ 62 \\ \underline{62} \end{array}$$

25.

$$\begin{array}{r} 8 \text{ r}35 \\ 42 \overline{)371} \\ \underline{336} \\ 35 \end{array}$$

27.

B.

$$\begin{array}{r} 120 \\ 61 \overline{)7320} \\ \underline{61} \\ 122 \\ \underline{122} \end{array}$$

1.

$$\begin{array}{r} 56 \text{ r}8 \\ 16 \overline{)904} \\ \underline{80} \\ 104 \\ \underline{96} \\ 8 \end{array}$$

3.

$$\begin{array}{r} 96 \\ 21 \overline{)2016} \\ \underline{189} \\ 126 \\ \underline{126} \end{array}$$

5.

$$\begin{array}{r} 222 \text{ r}2 \\ 9 \overline{)2000} \\ \underline{18} \\ 20 \\ \underline{18} \\ 20 \\ \underline{18} \\ 2 \end{array}$$

7.

$$\begin{array}{r} 305 \text{ r}5 \\ 14 \overline{)4275} \\ \underline{42} \\ 075 \\ \underline{70} \\ 5 \end{array}$$

9.

$$\begin{array}{r} 119 \\ 53 \overline{)6307} \\ \underline{53} \\ 100 \\ \underline{53} \\ 477 \\ \underline{477} \end{array}$$

11.

$$\begin{array}{r} 501 \\ 7 \overline{)3507} \\ \underline{35} \\ 007 \\ \underline{7} \end{array}$$

13.

$$\begin{array}{r} 604 \\ 6 \overline{)3624} \\ \underline{36} \\ 024 \\ \underline{24} \end{array}$$

15.

$$\begin{array}{r} 200 \\ 15 \overline{)3000} \\ \underline{30} \\ 000 \end{array}$$

17.

$$\begin{array}{r} 108 \text{ r}4 \\ 24 \overline{)2596} \\ \underline{24} \\ 196 \\ \underline{192} \\ 4 \end{array}$$

19.

$$\begin{array}{r} 600 \\ 38 \overline{)22800} \\ \underline{228} \\ 000 \end{array}$$

21.

$$\begin{array}{r} 102 \text{ r}98 \\ 411 \overline{)42020} \\ \underline{411} \\ 920 \\ \underline{822} \\ 98 \end{array}$$

23.

$$\begin{array}{r} 100 \text{ r}11 \\ 111 \overline{)11111} \\ \underline{111} \\ 011 \\ \underline{0} \\ 11 \end{array}$$

25.

$$\begin{array}{r} 17 \text{ r}123 \\ 405 \overline{)7008} \\ \underline{405} \\ 2958 \\ \underline{2835} \\ 123 \end{array}$$

27.

C.

1. (a) 1, 2, 3, 6

(b) $6 = 2 \times 3$

3. (a) 1, 19

(b) prime

5. (a) 1, 2, 4, 5, 8, 10, 20, 40

(b) $40 = 2 \times 2 \times 2 \times 5$

D.

1.
$$\begin{array}{r} 27 \text{ in.} \\ 9 \overline{)243} \\ \underline{18} \\ 63 \\ \underline{63} \\ 0 \end{array}$$

3.
$$\begin{array}{r} 13 \text{ hr} \\ 85 \overline{)1105} \\ \underline{85} \\ 255 \\ \underline{255} \\ 0 \end{array}$$

5.
$$\begin{array}{r} 27 + 1 = 28 \text{ joists} \\ 16 \overline{)432} \\ \underline{32} \\ 112 \\ \underline{112} \\ 0 \end{array}$$

7.
$$\begin{array}{r} 7 \text{ in.} \\ 18 \overline{)126} \\ \underline{126} \\ 0 \end{array}$$

9.
$$\begin{array}{r} \$ 4696 \\ - 3400 \\ \hline \$ 1296 \end{array}$$

$$\begin{array}{r} \$72 \text{ per hour} \\ 18 \overline{)1296} \\ \underline{126} \\ 36 \\ \underline{36} \\ 0 \end{array}$$

11.
$$\begin{array}{r} 48 \text{ boxes} \\ 10 \overline{)480} \\ \underline{40} \\ 80 \\ \underline{80} \\ 0 \end{array}$$

13.
$$\begin{array}{r} 27 \text{ reams} \\ 500 \overline{)13500} \\ \underline{1000} \\ 3500 \\ \underline{3500} \\ 0 \end{array}$$

15.
$$\begin{array}{r} 6 \text{ loops} \\ 3 \overline{)18} \\ \underline{18} \\ 0 \end{array}$$

17.
$$\begin{array}{r} 230 \text{ months} \\ 30 \overline{)6900} \\ \underline{60} \\ 90 \\ \underline{90} \\ 0 \\ \underline{0} \\ 0 \end{array}$$

$$\begin{array}{r} 19 \\ 12 \overline{)230} \\ \underline{12} \\ 110 \\ \underline{108} \\ 2 \end{array}$$

19 years, 2 months

19.
$$\begin{array}{r} 250 \text{ minutes} \\ 200 \overline{)50000} \\ \underline{400} \\ 1000 \\ \underline{1000} \\ 0 \\ \underline{0} \\ 0 \end{array}$$

$$\begin{array}{r} 4 \\ 60 \overline{)250} \\ \underline{240} \\ 10 \end{array}$$

4 hr, 10 min

E.

1. (a) $1347 \times 46819 \div 3 = 21,021,731$
 (b) $(76459 + 93008 + 255) \div 378 = 449$
 (c) $(4008 + 408 + 48) \div 48 = 93$
 (d) $9909 \times 9090 \div 3303 = 27,270$
3. $6587 \div 344 = 19.148...$ or 20 rivets to be sure
5. $297600 \div 96 = 3100$ min
 $3100 \div 60 = 51.666...$ or 51 hr 40 min
7. $115 \overline{)4830} \begin{array}{r} 42 \\ 460 \\ \hline 230 \\ 230 \\ \hline \end{array}$ hours

Exercises 1-5 Order of Operations**A.**

1. $2 + 8 \times 6 = 2 + 48 = 50$
3. $40 - 20 \div 5 = 40 - 4 = 36$
5. $16 \times 3 + 9 = 48 + 9 = 57$
7. $48 \div 8 - 2 = 6 - 2 = 4$
9. $(5 + 9) \times 3 = 14 \times 3 = 42$
11. $24 \div (6 - 2) = 24 \div 4 = 6$
13. $16 + 5 \times (3 + 6) = 16 + 5 \times 9 = 16 + 45 = 61$
15. $(23 + 5) \times (12 - 8) = 28 \times 4 = 112$
17. $6 + 4 \times 7 - 3 = 6 + 28 - 3 = 34 - 3 = 31$
19. $5 \times 8 + 6 \div 6 - 12 \times 2 = 40 + 1 - 24 = 41 - 24 = 17$
21. $2 \times (6 + 4 \times 9) = 2 \times (6 + 36) = 2 \times 42 = 84$
23. $(4 \times 3 + 8) \div 5 = (12 + 8) \div 5 = 20 \div 5 = 4$
25. $8 - 4 + 2 = 4 + 2 = 6$
27. $18 \times 10 \div 5 = 180 \div 5 = 36$
29. $12 - 7 - 3 = 5 - 3 = 2$
31. $12 - (7 - 3) = 12 - 4 = 8$
33. $\frac{36}{9} + \frac{27}{3} = 4 + 9 = 13$
35. $\frac{44 + 12}{11 - 3} = \frac{56}{8} = 7$
37. $\frac{6 + 12 \times 4}{15 - 3 \times 2} = \frac{6 + 48}{15 - 6} = \frac{54}{9} = 6$

$$39. \quad \frac{12+6}{3+6} + \frac{24}{6} - 6 \div 6 = \frac{18}{9} + 4 - 1 = 2 + 4 - 1 = 6 - 1 = 5$$

B.

$$1. \quad 3 \times \$34 + 5 \times \$39 = \$102 + \$195 = \$297$$

$$3. \quad 12 \times \$25 - 3 \times \$6 = \$300 - \$18 = \$282$$

$$\begin{aligned} 5. \quad \text{Cost} &= 2 \times \$12 \times 40 + 3 \times \$20 \times 40 + \$3240 + \$500 \\ &= \$960 + \$2400 + \$3240 + \$500 \\ &= \$7100 \end{aligned}$$

$$7. \quad 33 \times \$80 + 12 \times \$40 + 45 \times \$18 = \$2640 + \$480 + \$810 = \$3930$$

$$\begin{aligned} 9. \quad \text{China: } &51 \times 5 + 21 \times 3 + 28 \times 1 = 255 + 63 - 28 = 346 \text{ points} \\ \text{U.S.: } &36 \times 5 + 38 \times 3 + 36 \times 1 = 180 + 114 + 36 = 330 \text{ points} \\ &\text{China "won."} \end{aligned}$$

$$11. \quad \begin{array}{r} 8 \text{ gal} \\ 22 \overline{)176} \\ \underline{176} \\ 0 \end{array}$$

$$\begin{array}{r} 6 \text{ gal} \\ 30 \overline{)180} \\ \underline{180} \\ 0 \end{array}$$

$$8 \text{ gal} + 6 \text{ gal} = 14 \text{ gal}$$

C.

$$1. \quad 462 + 83 \times 95 = 462 + 7885 = 8347$$

$$3. \quad 7482 - 1152 \div 12 = 7482 - 96 = 7386$$

$$5. \quad (268 + 527) \div 159 = 795 \div 159 = 5$$

$$7. \quad 612 + 86 \times 9 - 1026 \div 38 = 612 + 774 - 27 = 1359$$

$$9. \quad 3579 - 16 \times (72 + 46) = 3579 - 16 \times 118 = 3579 - 1888 = 1691$$

$$11. \quad 864 \div 16 \times 27 = 54 \times 27 = 1458$$

$$13. \quad (296 + 18 \times 48) \times 12 = (296 + 864) \times 12 = 1160 \times 12 = 13,920$$

$$15. \quad (3297 + 1858 - 493) \div (48 \times 16 - 694) = 63$$

Problem Set 1**A.**

1. Five hundred ninety-three
3. Forty-five thousand, two hundred six
5. Two million, four hundred three thousand, five hundred sixty
7. Ten thousand twenty
9. 408 11. 230,056 13. 64,700
15. 690 17. 18,000 19. 700,000

B.

1.
$$\begin{array}{r} 24 \\ + 69 \\ \hline 93 \end{array}$$
3.
$$\begin{array}{r} 456 \\ + 72 \\ \hline 528 \end{array}$$
5.
$$\begin{array}{r} 396 \\ + 538 \\ \hline 934 \end{array}$$
7.
$$\begin{array}{r} 43 \\ - 28 \\ \hline 15 \end{array}$$
9.
$$\begin{array}{r} 734 \\ - 85 \\ \hline 649 \end{array}$$
11.
$$\begin{array}{r} 543 \\ - 348 \\ \hline 195 \end{array}$$
13.
$$\begin{array}{r} 376 \\ \times 4 \\ \hline 1504 \end{array}$$
15.
$$\begin{array}{r} 67 \\ \times 21 \\ \hline 67 \\ 134 \\ \hline 1407 \end{array}$$
17.
$$\begin{array}{r} 207 \\ \times 63 \\ \hline 621 \\ 1242 \\ \hline 13041 \text{ or } 13,041 \end{array}$$
19.
$$\begin{array}{r} 5,236 \\ \times 44 \\ \hline 20944 \\ 20944 \\ \hline 230384 \text{ or } 230,384 \end{array}$$
21.
$$\begin{array}{r} 37 \\ 7 \overline{)259} \\ \underline{21} \\ 49 \\ \underline{49} \end{array}$$
23.
$$\begin{array}{r} 57 \\ 42 \overline{)2394} \\ \underline{210} \\ 294 \\ \underline{294} \end{array}$$
25.
$$\begin{array}{r} 9 \\ 160 \overline{)1440} \\ \underline{1440} \end{array}$$
27.
$$\begin{array}{r} 18 \\ 73 \overline{)1314} \\ \underline{73} \\ 584 \\ \underline{584} \end{array}$$
29.
$$\frac{36 \times 91}{13 \times 42} = \frac{3276}{546}$$

$$= 546 \overline{)3276}$$

$$\begin{array}{r} 36 \\ \times 91 \\ \hline 36 \\ 324 \\ \hline 3276 \end{array}$$

$$\begin{array}{r} 42 \\ \times 13 \\ \hline 126 \\ 42 \\ \hline 546 \end{array}$$
31. $120 - 40 \div 8 = 120 - 5 = 115$
33. $3 \times 4 - 15 \div 3 = 12 - 5 = 7$
35.
$$\begin{array}{r} 308 \\ 793 \\ \hline 144 \\ \hline 1245 \end{array}$$

C.

1. (a) 1, 2, 4, 8,

(b) $8 = 2 \times 2 \times 2$

3. (a) 1, 31

(b) prime

5. (a) 1, 2, 3, 4, 6, 9, 12, 18, 36

(b) $36 = 2 \times 2 \times 3 \times 3$

D.

1. $6 \text{ ft} + 8 \text{ ft} + 20 \text{ ft} + 9 \text{ ft} = 43 \text{ ft}$

3. $346 + 210 + 4 \times 164 + 2 \times 96 + 208 + 280 = 1892 \text{ sq ft}$

5.
$$\begin{array}{r} 6 \\ 35 \overline{)210} \\ \underline{210} \end{array}$$

7.
$$\begin{array}{r} 210 \\ 215 \\ 245 \\ 217 \\ 220 \\ 227 \\ \underline{115} \\ 1449 \end{array}$$

$$\begin{array}{r} 207 \text{ lb average} \\ 7 \overline{)1449} \\ \underline{14} \\ 049 \\ \underline{49} \end{array}$$

9. $\$500 + 12 \times \$110 = \$500 + \$1320 = \boxed{\$1820}$

$$\begin{array}{r} \$110 \\ \times 12 \\ \hline 220 \\ 110 \\ \hline \$1320 \end{array}$$

11.
$$\begin{array}{r} 136 \\ - 107 \\ \hline 29 \text{ psi, Yes} \end{array}$$

13.
$$\begin{array}{r} 39000 \text{ gal per hour} \\ 4 \overline{)156000} \\ \underline{12} \\ 36 \\ \underline{36} \end{array}$$

$$\begin{array}{r} 650 \text{ gal per min} \\ 60 \overline{)39000} \\ \underline{360} \\ 300 \\ \underline{300} \end{array}$$

15. $167 \times 17 = 2839 \text{ lb}$

17. $\frac{3}{4} \times 32 = 24 \text{ hours}$

Note: $45 \text{ min} = \frac{3}{4} \text{ hr}$

19.
$$\begin{array}{r} 380 \\ \times 231 \\ \hline 380 \\ 1140 \\ \underline{760} \end{array}$$

87780 or 87,780 cu in.

21.
$$\begin{array}{r} 506409 \\ - 460089 \\ \hline 46320 \text{ or } 46,320 \text{ in } 4 \text{ hr} \end{array}$$

$$\begin{array}{r} 11580 \text{ rph} \\ 4 \overline{)46320} \end{array}$$

$$\begin{array}{r} 193 \text{ rpm} \\ 60 \overline{)11580} \\ \underline{60} \\ 558 \\ \underline{540} \\ 180 \\ \underline{180} \end{array}$$

23.
$$\begin{array}{r} 18 \\ - 6 \\ \hline 12 \end{array}$$
 $12 \div 2 = 6 \text{ ft from each wall}$

25. $\$85 \times 36 + \$350 = \$3060 + \$350 = \$3410$
 $\$3410 - \$3300 = \$110$

27.
$$\begin{aligned} \text{Cost} &= \$20 \times \$3 + 30 \times \$4 + (87 - 50) \times \$5 \\ &= 20 \times \$3 + 30 \times \$4 + 37 \times \$5 \\ &= \$60 + \$120 + \$185 \\ &= \$365 \end{aligned}$$

29. (a) $95 \div 19 + 300 \div 25 = 5 + 12 = 17 \text{ gal}$
 (b) $17 \times \$4 = \68

31.	$\begin{array}{r} 220 \\ \times 13 \\ \hline 660 \\ \underline{220} \\ 2860 \text{ calories} \end{array}$	33.	<u>Hybrid</u>	<u>Non-Hybrid</u>	
			\$ 26915	\$ 24718	\$ 14425
			+ 3876	+ 4291	<u>-13073</u>
			\$ 30791	\$ 29639	\$ 1352
			<u>-17718</u>	<u>-15214</u>	
			\$ 13073 or \$13,073	\$ 14425 or \$14,425	

The 3-year cost of the hybrid is lower by \$1352

35.
$$\begin{array}{r} 24 \text{ bushels} \\ 32 \overline{)768} \\ \underline{64} \\ 128 \\ \underline{128} \\ 0 \end{array}$$

