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Detailed solutions are shown for more difficult problems. For a group of similar problems, procedures are shown for the first one in the group and for any others that differ significantly.

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## CHAPTER 1 Basic Arithmetic

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### Exercise 1.1 Arithmetic Operations

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|--------|---------|---|---|
| 1. 16  | 16. 14  | 31. 1                                     | 44. tech $\frac{\$640}{40} = \$16/\text{hr};$             |
| 2. 15  | 17. 77  | 32. 1                                     | teacher $\frac{\$570}{30} = \$19/\text{hr}$               |
| 3. 4   | 18. 9   | 33. 10                                    |   |
| 4. 20  | 19. 45  | 34. 19                                    | 45. $(6000)(9000) =$                                      |
| 5. 120 | 20. 200 | 35. 55                                    | 54,000,000 mi   |
| 6. 160 | 21. 10  | 36. 150                                   | 46. $\frac{44 \text{ km}}{2 \text{ h}} = 22 \text{ km/h}$ |
| 7. 4   | 22. 250 | 37. 1500                                  | 47. 1 A   |
| 8. 57  | 23. 2   | 38. 510                                   | 48. 2 A   |
| 9. 36  | 24. 30  | 39. 1                                     | 49. 16 V  |
| 10. 7  | 25. 120 | 40. 5                                     | 50. 12 V  |
| 11. 40 | 26. 40  | 41. 3                                     | 51. 7   |
| 12. 5  | 27. 5   | 42. 5                                     | 52. 122   |
| 13. 50 | 28. 5   | 43. $\frac{180}{90} = 20 \text{ mi/gal};$ |   |
| 14. 2  | 29. 25  | $\frac{210}{10} = 21 \text{ mi/gal}$      |   |
| 15. 26 | 30. 9   |   |   |

### Exercise 1.2 Multiplying and Dividing Fractions

- |                    |                     |                     |                    |
|--------------------|---------------------|---------------------|--------------------|
| 1. $\frac{3}{5}$   | 12. $\frac{6}{13}$  | 23. $\frac{2}{5}$   | 34. $\frac{1}{8}$  |
| 2. $\frac{1}{3}$   | 13. $\frac{9}{35}$  | 24. $\frac{1}{12}$  | 35. 6              |
| 3. $\frac{4}{5}$   | 14. $\frac{1}{7}$   | 25. $\frac{28}{45}$ | 36. 3              |
| 4. $\frac{1}{2}$   | 15. $\frac{2}{15}$  | 26. $\frac{10}{11}$ | 37. $\frac{1}{3}$  |
| 5. $\frac{3}{4}$   | 16. $\frac{1}{24}$  | 27. 2               | 38. $\frac{1}{5}$  |
| 6. $\frac{2}{3}$   | 17. $\frac{4}{15}$  | 28. $\frac{1}{45}$  | 39. $\frac{1}{2}$  |
| 7. $\frac{1}{5}$   | 18. $\frac{11}{60}$ | 29. $\frac{5}{16}$  | 40. $\frac{2}{5}$  |
| 8. $\frac{1}{20}$  | 19. $\frac{4}{3}$   | 30. $\frac{11}{12}$ | 41. 8              |
| 9. $\frac{2}{9}$   | 20. 6               | 31. $\frac{5}{6}$   | 42. $\frac{5}{14}$ |
| 10. $\frac{3}{7}$  | 21. 2               | 32. $\frac{5}{21}$  | 43. 6              |
| 11. $\frac{2}{11}$ | 22. 5               | 33. $\frac{2}{21}$  | 44. $\frac{3}{2}$  |

45. 1  
 46. 4  
 47.  $\frac{15}{50} = \frac{3}{10}$  ft  
 48.  $\frac{3}{4}(100) = 75$  ft
49.  $(1000)\left(\frac{3}{5}\right)\left(\frac{1}{2}\right) = \$300$   
 50.  $(40,000)\left(\frac{1}{2}\right)\left(\frac{1}{4}\right) = \$5000$   
 51. 27 V  
 52. 60 V
53.  $\frac{1}{16}$  A  
 54.  $\frac{1}{50}$  A  
 55.  $\frac{9}{25}$  W  
 56.  $\frac{1}{20}$  W

**Exercise 1.3 Adding Fractions**

1.  $\frac{7}{7} = 1$   
 2.  $\frac{4}{5}$   
 3.  $\frac{5}{8}$   
 4.  $\frac{5}{6}$   
 5.  $\frac{13}{20}$   
 6.  $\frac{11}{14}$   
 7.  $\frac{19}{24}$   
 8.  $\frac{11}{12}$   
 9.  $\frac{14}{15}$   
 10.  $\frac{2}{5}$   
 11.  $\frac{31}{60}$   
 12.  $\frac{31}{36}$   
 13.  $\frac{57}{200}$   
 14.  $\frac{41}{75}$   
 15.  $\frac{1}{4}$   
 16.  $\frac{1}{10}$   
 17.  $\frac{1}{6}$   
 18.  $\frac{1}{60}$   
 19.  $\frac{9}{10}$   
 20.  $\frac{7}{8}$   
 21.  $\frac{11}{20}$   
 22.  $\frac{1}{20}$   
 23.  $\frac{85}{24}$
24.  $\frac{69}{35}$   
 25. 5  
 26.  $\frac{3}{4}$   
 27.  $\frac{33}{80}$   
 28.  $\frac{37}{100}$   
 29.  $\frac{127}{200}$   
 30.  $\frac{49}{120}$   
 31.  $\frac{7}{20}$   
 32.  $\frac{7}{100}$   
 33.  $\frac{63}{100}$   
 34.  $\frac{15}{4}$   
 35.  $\frac{31}{60}$   
 36.  $\frac{7}{24}$   
 37.  $\frac{2}{3}$   
 38.  $\frac{5}{6}$   
 39.  $\frac{7}{12}$   
 40.  $\frac{6}{25}$   
 41.  $\frac{1}{80}$   
 42.  $\frac{59}{100}$   
 43.  $\frac{13}{12}$   
 44.  $\frac{3}{20}$   
 45.  $\frac{14}{15}$   
 46.  $\frac{3}{8}$
47.  $\frac{41}{100}$   
 48.  $\frac{1}{50}$   
 49.  $\frac{11}{20}$   
 50.  $\frac{3}{4}$   
 51.  $\frac{3}{8}$   
 52.  $\frac{1}{4}$   
 53.  $\frac{33}{40}$   
 54.  $\frac{2}{5}$   
 55. 1 lb  
 56. up  $\frac{5}{8}$  lb  
 57.  $\frac{1}{4}$   
 58.  $\frac{1}{8}$   
 59.  $\frac{13}{4}$  in  
 60.  $\left[ (5 \text{ ft } 3 \text{ in}) - (6) \left( \frac{1}{2} \text{ in} \right) \right] \div 5 = 1 \text{ ft}$   
 61. 10  $\Omega$   
 62. 25  $\Omega$   
 63. 20  $\Omega$   
 64. 300  $\Omega$   
 65.  $\frac{20}{3}$   $\Omega$   
 66.  $\frac{40}{3}$   $\Omega$   
 67.  $\left( \frac{1}{10} \right) \left[ 3 \div \left( \frac{1}{2} \right) \right] \left( \frac{20}{3} \right) = 4$   
 68.  $\frac{7}{10} \left( \frac{9}{20} \right) = \frac{7}{20}$

**Exercise 1.4 Hand Calculator Operations**

1. 4  
 2. 197  
 3. 47  
 4. 1900  
 5. 130  
 6. 12  
 7. 412  
 8. 4  
 9. 2

10. 3  
11. 147  
12. 32  
13. 60  
14. 3  
15. 40  
16. 200

17. 1  
18. 2  
19. 1  
20. 1  
21. 4  
22. 2  
23. 12

24. 1  
25. 710 (OIL)  
26. 142857  
27. 666.7  $\Omega$   
28. 57.1  $\Omega$

### Review Exercises

1. 22  
2. 47  
3. 12  
4. 400  
5. 21  
6. 135  
7.  $\frac{15}{4}$   
8.  $\frac{1}{2}$   
9.  $\frac{3}{2}$   
10.  $\frac{2}{5}$   
11.  $\frac{15}{2}$   
12.  $\frac{1}{9}$   
13. 4  
14. 10  
15.  $\frac{5}{2}$   
16.  $\frac{4}{5}$   
17.  $\frac{11}{16}$   
18.  $\frac{1}{50}$   
19.  $\frac{1}{5}$

20.  $\frac{17}{6}$   
21. 2  
22. 2  
23.  $\frac{7}{24}$   
24.  $\frac{13}{40}$   
25.  $\frac{5}{36}$   
26. 25  
27.  $\frac{27}{100}$   
28.  $\frac{1}{28}$   
29.  $\frac{8}{7}$   
30.  $\frac{7}{16}$   
31. 200  
32. 58  
33. 147  
34. 2  
35. 2  
36. 3  
37. 25 mi/h  
38. \$160  
39.  $\left(\frac{1}{2}\right)(500) = 250$  ft

40.  $500 - 400 - 25 = \$75$   
41.  $1000 + 250 = \$1250$   
42.  $\left[7 - 15\left(\frac{4}{5}\right) \div 12\right] \div 16 = \frac{3}{8}$  ft  
43.  $\frac{1}{2}$  A  
44.  $\frac{1}{16}$  A  
45. 10 V  
46.  $\frac{24}{5}$  V  
47.  $\frac{18}{5}$  W  
48. 24 W  
49. 27 V  
50.  $\frac{2}{5}$  A  
51. 20  $\Omega$   
52. 60  $\Omega$   
53. 20  $\Omega$   
54. 37  $\Omega$   
55.  $\frac{1}{5}\left(5 + \frac{3}{5}\right)\left(\frac{5}{3}\right) = \frac{25}{9}$   
56.  $\frac{\left(\frac{7}{20}\right)\left(\frac{1}{2}\right)}{\frac{9}{10}} = \frac{7}{36}$

## CHAPTER 2 Decimals and Percentages

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### Exercise 2.1 Decimals

1. 10.09  
2. 65.129  
3. 0.91  
4. 69.384

5. 22.71  
6. 7.39  
7. 4.05  
8. 1.202

9. 0.0062  
10. 10.01  
11. 12  
12. 0.069