

T2-1

REVIEW EXERCISES | CHAPTER 2—SECTION I

For each of the following, identify the type of fraction, and write it in word form.

1. $23\frac{4}{5}$

Mixed
Twenty-three
and four-fifths

2. $\frac{12}{12}$

Improper
Twelve-twelfths

3. $\frac{15}{9}$

Improper
Fifteen-ninths

4. $\frac{7}{16}$

Proper
Seven-sixteenths

5. $2\frac{1}{8}$

Mixed
Two and
one-eighth

Convert the following improper fractions to whole or mixed numbers.

6. $\frac{26}{8} = 3\frac{2}{8} = \underline{\underline{3\frac{1}{4}}}$

7. $\frac{20}{6} = 3\frac{2}{6} = \underline{\underline{3\frac{1}{3}}}$

8. $\frac{92}{16} = 5\frac{12}{16} = \underline{\underline{5\frac{3}{4}}}$

9. $\frac{64}{15} = \underline{\underline{4\frac{4}{15}}}$

10. $\frac{88}{11} = \underline{\underline{8}}$

11. $\frac{33}{31} = \underline{\underline{1\frac{2}{31}}}$

Convert the following mixed numbers to improper fractions.

$$12. \quad 6\frac{1}{2} = \frac{13}{2}$$
$$(6 \times 2 + 1 = 13)$$

$$13. \quad 11\frac{4}{5} = \frac{59}{5}$$
$$(11 \times 5 + 4 = 59)$$

$$14. \quad 25\frac{2}{3} = \frac{77}{3}$$
$$(25 \times 3 + 2 = 77)$$

$$15. \quad 18\frac{5}{8} = \frac{149}{8}$$
$$(18 \times 8 + 5 = 149)$$

$$16. \quad 1\frac{5}{9} = \frac{14}{9}$$
$$(1 \times 9 + 5 = 14)$$

$$17. \quad 250\frac{1}{4} = \frac{1,001}{4}$$
$$(250 \times 4 + 1 = 1,001)$$

T2-3

REVIEW EXERCISES | CHAPTER 2—SECTION I

Use inspection or the greatest common divisor to reduce the following fractions to lowest terms.

$$18. \quad \frac{21}{35}$$
$$\frac{21 \div 7}{35 \div 7} = \frac{3}{\underline{\underline{5}}}$$

$$19. \quad \frac{9}{12}$$
$$\frac{9 \div 3}{12 \div 3} = \frac{3}{\underline{\underline{4}}}$$

$$20. \quad \frac{18}{48}$$
$$\frac{18 \div 6}{48 \div 6} = \frac{3}{\underline{\underline{8}}}$$

$$21. \quad \frac{216}{920}$$
$$\frac{216 \div 8}{920 \div 8} = \frac{27}{\underline{\underline{115}}}$$

$$22. \quad \frac{27}{36}$$
$$\frac{27 \div 9}{36 \div 9} = \frac{3}{\underline{\underline{4}}}$$

$$23. \quad \frac{14}{112}$$
$$\frac{14 \div 14}{112 \div 14} = \frac{1}{\underline{\underline{8}}}$$

$$24. \quad \frac{9}{42}$$
$$\frac{9 \div 3}{42 \div 3} = \frac{3}{\underline{\underline{14}}}$$

$$25. \quad \frac{95}{325}$$
$$\frac{95 \div 5}{325 \div 5} = \frac{19}{\underline{\underline{65}}}$$

$$26. \quad \frac{8}{23}$$
$$\frac{8}{23} = \text{Lowest terms}$$
$$\frac{8}{\underline{\underline{23}}}$$

$$27. \quad \frac{78}{96}$$
$$\frac{78 \div 6}{96 \div 6} = \frac{13}{\underline{\underline{16}}}$$

$$28. \quad \frac{30}{150}$$
$$\frac{30 \div 30}{150 \div 30} = \frac{1}{\underline{\underline{5}}}$$

$$29. \quad \frac{85}{306}$$
$$\frac{85 \div 17}{306 \div 17} = \frac{5}{\underline{\underline{18}}}$$

Raise the following fractions to higher terms, as indicated.

30. $\frac{2}{3}$ to twenty-sevenths

$$\frac{2}{3} = \frac{18}{27} \quad \left(\begin{array}{l} 27 \div 3 = 9 \\ 9 \times 2 = 18 \end{array} \right)$$

31. $\frac{3}{4}$ to forty-eighths

$$\frac{3}{4} = \frac{36}{48} \quad \left(\begin{array}{l} 48 \div 4 = 12 \\ 12 \times 3 = 36 \end{array} \right)$$

32. $\frac{7}{8}$ to eightieths

$$\frac{7}{8} = \frac{70}{80} \quad \left(\begin{array}{l} 80 \div 8 = 10 \\ 10 \times 7 = 70 \end{array} \right)$$

33. $\frac{11}{16}$ to sixty-fourths

$$\frac{11}{16} = \frac{44}{64} \quad \left(\begin{array}{l} 64 \div 16 = 4 \\ 4 \times 11 = 44 \end{array} \right)$$

34. $\frac{1}{5}$ to hundredths

$$\frac{1}{5} = \frac{20}{100} \quad \left(\begin{array}{l} 100 \div 5 = 20 \\ 20 \times 1 = 20 \end{array} \right)$$

35. $\frac{3}{7}$ to ninety-eighths

$$\frac{3}{7} = \frac{42}{98} \quad \left(\begin{array}{l} 98 \div 7 = 14 \\ 14 \times 3 = 42 \end{array} \right)$$

36. $\frac{3}{5} = \frac{\quad}{25}$

$$\frac{3}{5} = \frac{15}{25}$$

$$\left(\begin{array}{l} 25 \div 5 = 5 \\ 5 \times 3 = 15 \end{array} \right)$$

37. $\frac{5}{8} = \frac{\quad}{64}$

$$\frac{5}{8} = \frac{40}{64}$$

$$\left(\begin{array}{l} 64 \div 8 = 8 \\ 8 \times 5 = 40 \end{array} \right)$$

38. $\frac{5}{6} = \frac{\quad}{360}$

$$\frac{5}{6} = \frac{300}{360}$$

$$\left(\begin{array}{l} 360 \div 6 = 60 \\ 60 \times 5 = 300 \end{array} \right)$$

39. $\frac{9}{13} = \frac{\quad}{182}$

$$\frac{9}{13} = \frac{126}{182}$$

$$\left(\begin{array}{l} 182 \div 13 = 14 \\ 14 \times 9 = 126 \end{array} \right)$$

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40. $\frac{23}{24} = \frac{\quad}{96}$

$$\frac{23}{24} = \frac{92}{96} \left(\begin{array}{l} 96 \div 24 = 4 \\ 4 \times 23 = 92 \end{array} \right)$$

41. $\frac{2}{9} = \frac{\quad}{72}$

$$\frac{2}{9} = \frac{16}{72} \left(\begin{array}{l} 72 \div 9 = 8 \\ 8 \times 2 = 16 \end{array} \right)$$

42. $\frac{3}{8} = \frac{\quad}{4,000}$

$$\frac{3}{8} = \frac{1,500}{4,000} \left(\begin{array}{l} 4,000 \div 8 = 500 \\ 500 \times 3 = 1,500 \end{array} \right)$$

43. A wedding cake was cut into 40 slices. If 24 of the slices were eaten, what fraction represents the eaten portion of the cake? Reduce your answer to lowest terms.

$$\frac{24}{40} = \frac{3}{5} \text{ Was eaten}$$

44. Shawna Tysse's swimming pool holds 16,000 gallons of water, and her spa holds 2,000 gallons of water. Of all the water in the pool and spa,

- a. What fraction is the spa water?

$$\frac{2,000}{2,000 + 16,000} = \frac{2}{18} = \frac{1}{9}$$

- b. What fraction is the pool water?

$$\frac{16,000}{2,000 + 16,000} = \frac{16}{18} = \frac{8}{9}$$

THE WRENCH SALE

45. You work in the tool department of a Lowes store. Your manager asks you to set up a point-of-purchase display for a set of 10 wrenches that are on sale this week. He asks you to arrange them in order from smallest to largest on the display board. When you open the box, you find the following sizes in inches: $\frac{9}{32}$, $\frac{5}{8}$, $\frac{5}{16}$, $\frac{1}{2}$, $\frac{3}{16}$, $\frac{3}{4}$, $\frac{7}{8}$, $\frac{5}{32}$, $\frac{1}{4}$, $\frac{3}{8}$.
- Rearrange the wrenches by size, from smallest to largest. To solve, raise all fractions to the LCD, 32, then arrange and reduce.

$$\frac{5}{32}, \frac{3}{32}, \frac{1}{32}, \frac{9}{32}, \frac{5}{32}, \frac{3}{32}, \frac{1}{2}, \frac{5}{32}, \frac{3}{32}, \frac{7}{32}, \frac{3}{8}$$
 - Next, your manager tells you that the sale will be for “1/3 off” the regular price of \$57, and has asked you to calculate the “sale price” to be printed on the sign.

$$\frac{2}{3} \times 57 = \underline{\underline{\$38}}$$
 - After the sale is over, your manager asks you for the sales figures on the wrench promotion. If 150 sets were sold that week, what amount of revenue will you report?

$$\begin{array}{r} 150 \\ \times 38 \\ \hline \underline{\underline{\$5,700}} \end{array}$$
 - If \$6,000 in sales was expected, what reduced fraction represents the sales actually attained?

$$\frac{5,700}{6,000} = \frac{19}{20}$$

T2-7

REVIEW EXERCISES | CHAPTER 2—SECTION II

Find the least common denominator for the following groups of fractions.

$$1. \quad \frac{4}{5}, \frac{2}{3}, \frac{8}{15} \quad \begin{array}{c|c|c|c} 3 & 5 & 3 & 15 \\ \hline 5 & 5 & 1 & 5 \\ \hline 1 & 1 & 1 & \end{array}$$

$$3 \times 5 = \underline{\underline{15}} \text{ LCD}$$

$$2. \quad \frac{1}{3}, \frac{4}{9}, \frac{3}{4} \quad \begin{array}{c|c|c|c} 3 & 3 & 9 & 4 \\ \hline 2 & 1 & 3 & 4 \\ \hline 3 & 1 & 3 & 2 \\ \hline 2 & 1 & 1 & 2 \\ \hline 1 & 1 & 1 & \end{array}$$

$$3 \times 2 \times 3 \times 2 = \underline{\underline{36}} \text{ LCD}$$

$$3. \quad \frac{5}{6}, \frac{11}{12}, \frac{1}{4}, \frac{1}{2} \quad \begin{array}{c|c|c|c|c} 2 & 6 & 12 & 4 & 2 \\ \hline 2 & 3 & 6 & 2 & 1 \\ \hline 3 & 3 & 3 & 1 & 1 \\ \hline 1 & 1 & 1 & 1 & \end{array}$$

$$2 \times 2 \times 3 = \underline{\underline{12}} \text{ LCD}$$

$$4. \quad \frac{1}{6}, \frac{19}{24}, \frac{2}{3}, \frac{3}{5} \quad \begin{array}{c|c|c|c|c} 2 & 6 & 24 & 3 & 5 \\ \hline 2 & 3 & 12 & 3 & 5 \\ \hline 2 & 3 & 6 & 3 & 5 \\ \hline 3 & 3 & 3 & 3 & 5 \\ \hline 5 & 1 & 1 & 1 & 5 \\ \hline 1 & 1 & 1 & 1 & \end{array}$$

$$2 \times 2 \times 2 \times 3 \times 5 = \underline{\underline{120}} \text{ LCD}$$

$$5. \quad \frac{21}{25}, \frac{9}{60}, \frac{7}{20}, \frac{1}{3} \quad \begin{array}{c|c|c|c|c} 2 & 25 & 60 & 20 & 3 \\ \hline 2 & 25 & 30 & 10 & 3 \\ \hline 3 & 25 & 15 & 5 & 3 \\ \hline 5 & 25 & 5 & 5 & 1 \\ \hline 5 & 5 & 1 & 1 & 1 \\ \hline 1 & 1 & 1 & 1 & \end{array}$$

$$2 \times 2 \times 3 \times 5 \times 5 = \underline{\underline{300}} \text{ LCD}$$

$$6. \quad \frac{5}{12}, \frac{9}{14}, \frac{2}{3}, \frac{7}{10} \quad \begin{array}{c|c|c|c|c} 2 & 12 & 14 & 3 & 10 \\ \hline 2 & 6 & 7 & 3 & 5 \\ \hline 3 & 3 & 7 & 3 & 5 \\ \hline 5 & 1 & 7 & 1 & 5 \\ \hline 7 & 1 & 7 & 1 & 1 \\ \hline 1 & 1 & 1 & 1 & \end{array}$$

$$2 \times 2 \times 3 \times 5 \times 7 = \underline{\underline{420}} \text{ LCD}$$

T2-8**REVIEW EXERCISES | CHAPTER 2—SECTION II**

Add the following fractions, and reduce to lowest terms.

$$7. \frac{5}{6} + \frac{1}{2} \quad \frac{5}{6} \\ + \frac{3}{6} \\ \hline \frac{8}{6} = 1 \frac{2}{6} = 1 \frac{1}{3}$$

$$8. \frac{2}{3} + \frac{3}{4} \quad \frac{8}{12} \\ + \frac{9}{12} \\ \hline \frac{17}{12} = 1 \frac{5}{12}$$

$$9. \frac{5}{8} + \frac{13}{16} \quad \frac{10}{16} \\ + \frac{13}{16} \\ \hline \frac{23}{16} = 1 \frac{7}{16}$$

$$10. \frac{9}{32} + \frac{29}{32} \\ \frac{9 + 29}{32} = \frac{38}{32} = 1 \frac{6}{32} = 1 \frac{3}{16}$$

$$11. \frac{1}{2} + \frac{4}{5} + \frac{7}{20} \quad \frac{10}{20} \\ \frac{16}{20} \\ + \frac{7}{20} \\ \hline \frac{33}{20} = 1 \frac{13}{20}$$

$$12. \frac{3}{4} + \frac{7}{8} + \frac{5}{16} \quad \frac{12}{16} \\ \frac{14}{16} \\ + \frac{5}{16} \\ \hline \frac{31}{16} = 1 \frac{15}{16}$$

$$13. \frac{11}{12} + \frac{3}{5} + \frac{19}{30} \quad \frac{55}{60} \\ \frac{36}{60} \\ + \frac{38}{60} \\ \hline \frac{129}{60} = 2 \frac{9}{60} = 2 \frac{3}{20}$$

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REVIEW EXERCISES | CHAPTER 2—SECTION II

Add the following fractions, and reduce to lowest terms.

$$\begin{array}{r} 14. \quad 5\frac{4}{7} + \frac{2}{3} \quad 5\frac{12}{21} \\ \quad \quad \quad + \frac{14}{21} \\ \hline \quad \quad \quad 5\frac{26}{21} = 5 + 1\frac{5}{21} = \underline{\underline{6\frac{5}{21}}} \end{array}$$

$$\begin{array}{r} 15. \quad 7\frac{1}{2} + 2\frac{7}{8} + 1\frac{1}{6} \quad 7\frac{12}{24} \\ \quad \quad \quad \quad \quad \quad \quad + 2\frac{21}{24} \\ \quad \quad \quad \quad \quad \quad \quad + 1\frac{4}{24} \\ \hline \quad \quad \quad \quad \quad \quad \quad 10\frac{37}{24} = 10 + 1\frac{13}{24} = \underline{\underline{11\frac{13}{24}}} \end{array}$$

$$\begin{array}{r} 16. \quad 13\frac{5}{9} + 45\frac{1}{3} + 9\frac{7}{27} \quad 13\frac{15}{27} \\ \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad + 45\frac{9}{27} \\ \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad + 9\frac{7}{27} \\ \hline \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad 67\frac{31}{27} = 67 + 1\frac{4}{27} = \underline{\underline{68\frac{4}{27}}} \end{array}$$

17. Andrea Roderick ran $3\frac{1}{2}$ miles on Monday, $2\frac{4}{5}$ miles on Tuesday, and $4\frac{1}{8}$ miles on Wednesday. What was Andrea's total mileage for the 3 days?

$$\begin{array}{r} \text{Monday } 3\frac{1}{2} = 3\frac{20}{40} \\ \text{Tuesday } 2\frac{4}{5} = 2\frac{32}{40} \\ \text{Wednesday } 4\frac{1}{8} = + 4\frac{5}{40} \\ \hline \quad \quad \quad 9\frac{57}{40} = 9 + 1\frac{17}{40} = \underline{\underline{10\frac{17}{40}}} \text{ Total miles} \end{array}$$

18. West Elm shipped three packages to New York weighing $45\frac{1}{5}$, $126\frac{3}{4}$, and $88\frac{3}{8}$ pounds. What was the total weight of the shipment?

$$\begin{array}{r}
 45\frac{1}{5} = 45\frac{8}{40} \\
 126\frac{3}{4} = 126\frac{30}{40} \\
 + 88\frac{3}{8} = + 88\frac{15}{40} \\
 \hline
 259\frac{53}{40} = 259 + 1\frac{13}{40} = \underline{\underline{260\frac{13}{40}}} \text{ Pounds}
 \end{array}$$

19. At the Grove Market you buy $6\frac{3}{10}$ pounds of red onions and $4\frac{1}{3}$ pounds of yellow onions. What is the total weight of the purchase?

$$\begin{array}{r}
 6\frac{3}{10} = 6\frac{9}{30} \\
 + 4\frac{1}{3} = + 4\frac{10}{30} \\
 \hline
 10\frac{19}{30} \\
 \hline
 \hline
 \end{array}$$

20. BrewMasters Coffee Co. purchased $12\frac{1}{2}$ tons of coffee beans in January, $15\frac{4}{5}$ tons in February, and $34\frac{7}{10}$ tons in March. What was the total weight of the purchases?

$$\begin{array}{r}
 \text{January} \quad 12\frac{1}{2} = 12\frac{5}{10} \\
 \text{February} \quad 15\frac{4}{5} = 15\frac{8}{10} \\
 \text{March} \quad + 34\frac{7}{10} = + 34\frac{7}{10} \\
 \hline
 61\frac{20}{10} = 61 + 2 = \underline{\underline{63}} \text{ Tons}
 \end{array}$$

Subtract the following fractions, and reduce to lowest terms.

$$\begin{aligned}
 21. \quad & \frac{5}{6} - \frac{1}{6} \\
 & = \frac{4}{6} = \frac{2}{\underline{\underline{3}}}
 \end{aligned}$$

$$\begin{aligned}
 22. \quad & \frac{4}{7} - \frac{1}{8} \\
 & = \frac{32}{56} - \frac{7}{56} = \frac{25}{\underline{\underline{56}}}
 \end{aligned}$$

$$\begin{aligned}
 23. \quad & \frac{2}{3} - \frac{1}{18} \\
 & = \frac{12}{18} - \frac{1}{18} = \frac{11}{\underline{\underline{18}}}
 \end{aligned}$$

$$\begin{aligned}
 24. \quad & \frac{3}{4} - \frac{9}{16} \\
 & = \frac{12}{16} - \frac{9}{16} = \frac{3}{\underline{\underline{16}}}
 \end{aligned}$$

$$\begin{aligned}
 25. \quad & 12\frac{3}{5} - 4\frac{1}{3} \\
 & = 12\frac{9}{15} - 4\frac{5}{15} = \underline{\underline{8\frac{4}{15}}}
 \end{aligned}$$

$$\begin{aligned}
 26. \quad & 8\frac{1}{4} - 5\frac{2}{3} \\
 & = 8\frac{3}{12} - 5\frac{8}{12} \\
 & = 7\frac{15}{12} - 5\frac{8}{12} = \underline{\underline{2\frac{7}{12}}}
 \end{aligned}$$

$$\begin{aligned}
 27. \quad & 28\frac{4}{9} - 1\frac{4}{5} \\
 & = 28\frac{20}{45} - 1\frac{36}{45} \\
 & = 27\frac{65}{45} - 1\frac{36}{45} = \underline{\underline{26\frac{29}{45}}}
 \end{aligned}$$

$$\begin{aligned}
 28. \quad & 8\frac{11}{12} - 8\frac{3}{8} \\
 & = 8\frac{22}{24} - 8\frac{9}{24} = \underline{\underline{\frac{13}{24}}}
 \end{aligned}$$

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REVIEW EXERCISES | CHAPTER 2—SECTION II

29. Steve Adams sold $18\frac{4}{5}$ of his $54\frac{2}{3}$ acres of land. How many acres does Steve have left?

$$\begin{array}{r} 54\frac{2}{3} = 54\frac{10}{15} = 53\frac{25}{15} \\ - 18\frac{4}{5} = -18\frac{12}{15} = -18\frac{12}{15} \\ \hline \hline 35\frac{13}{15} \text{ Acres left} \end{array}$$

30. A particular dress requires $3\frac{1}{4}$ yards of fabric for manufacturing. If the matching jacket requires $\frac{5}{6}$ yard less fabric, how much fabric is needed for both pieces?

$$\begin{array}{r} 3\frac{1}{4} = \frac{13}{4} = \frac{39}{12} \\ - \frac{5}{6} = -\frac{5}{6} = -\frac{10}{12} \\ \hline \hline \frac{29}{12} = 2\frac{5}{12} \text{ Yards for jacket} \end{array} \quad \begin{array}{r} 3\frac{1}{4} = 3\frac{3}{12} \\ + 2\frac{5}{12} = +2\frac{5}{12} \\ \hline \hline 5\frac{8}{12} = \underline{\underline{5\frac{2}{3}}} \text{ Total yards for both pieces} \end{array}$$

31. Julie Moffitt bought a frozen, factory-processed turkey that included the giblets and neck.

The package weighed $22\frac{3}{4}$ pounds. Julie thawed the bird and then removed and weighed the giblets and neck, which totaled $1\frac{1}{8}$ pounds. The juice that she drained from the package weighed $\frac{1}{2}$ pound. How much did the turkey weigh going into the oven?

$1\frac{1}{8}$ pounds—giblets and neck

$$22\frac{3}{4} = 22\frac{6}{8}$$

$+\frac{1}{2}$ pounds—juice

$$-1\frac{5}{8} = -1\frac{5}{8}$$

$1\frac{5}{8}$ pounds—weight lost in thawing

$$\underline{\underline{21\frac{1}{8}}}$$
 Pounds

32. Bill Morrow weighed $196\frac{1}{2}$ pounds when he decided to join a gym to lose some weight.

At the end of the first month he weighed $191\frac{3}{8}$ pounds.

a. How much did he lose that month?

$$196\frac{1}{2} = 196\frac{4}{8}$$

$$\underline{-191\frac{3}{8}} = -191\frac{3}{8}$$

$$\underline{\underline{5\frac{1}{8}}}$$
 Pounds

b. If his goal is $183\frac{3}{4}$ pounds, how much more does he have to lose?

$$191\frac{3}{8} = 191\frac{3}{8} = 190\frac{11}{8}$$

$$\underline{-183\frac{3}{4}} = \underline{-183\frac{6}{8}} = \underline{-183\frac{6}{8}}$$

$$\underline{\underline{7\frac{5}{8}}}$$
 Pounds

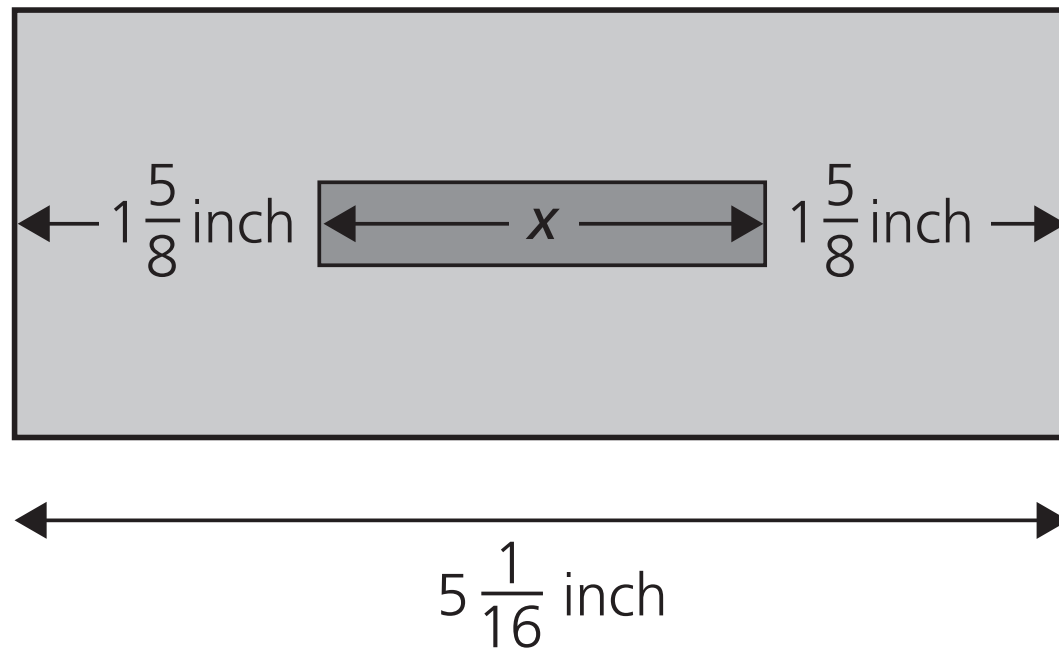
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REVIEW EXERCISES | CHAPTER 2—SECTION II

33. Curtis Industries manufactures metal heat shields for light fixture assemblies. What is the length, x , on the heat shield?

$$\begin{array}{r} 1\frac{5}{8} \\ + 1\frac{5}{8} \\ \hline 2\frac{10}{8} = 3\frac{2}{8} = 3\frac{1}{4} \end{array}$$

$$\begin{array}{r} 5\frac{1}{16} = 4\frac{17}{16} \\ - 3\frac{1}{4} = -3\frac{4}{16} \\ \hline 1\frac{13}{16} \text{ inch} \end{array}$$



34. John Lacey, a painter, used $6\frac{4}{5}$ gallons of paint on the exterior of a house and $9\frac{3}{4}$ gallons on the interior.

- a. What is the total amount of paint used on the house?

$$6\frac{4}{5} = 6\frac{16}{20}$$

$$+ 9\frac{3}{4} = + 9\frac{15}{20}$$

$$\underline{\quad\quad\quad} \quad \underline{\quad\quad\quad}$$

$$15\frac{31}{20} = \underline{\underline{16\frac{11}{20}}}$$

- b. If an additional $8\frac{3}{5}$ gallons was used on the garage, what is the total amount of paint used on the house and garage?

$$16\frac{11}{20} = 16\frac{11}{20}$$

$$+ 8\frac{3}{5} = + 8\frac{12}{20}$$

$$\underline{\quad\quad\quad} \quad \underline{\quad\quad\quad}$$

$$24\frac{23}{20} = \underline{\underline{25\frac{3}{20}}}$$

- c. Rounding your answer from part b “up” to the next whole gallon, calculate the total cost of the paint, if you paid \$23 for each gallon.

26

$$\times 23$$

$$\underline{\underline{\$ 598}} \quad \text{Total cost of paint}$$

THE RED-EYE EXPRESS

35. You are an executive with the Varsity Corporation in Atlanta, Georgia. The company president was scheduled to make an important sales presentation tomorrow afternoon in Seattle, Washington, but has now asked you to take his place.

The trip consists of a $2\frac{1}{2}$ hour flight from Atlanta to Dallas, a $1\frac{1}{4}$ hour layover in Dallas, and then a $3\frac{3}{4}$ hour flight to Portland. There is a $1\frac{1}{2}$ hour layover in Portland and then a $\frac{3}{4}$ hour flight to Seattle. Seattle is on Pacific Time, which is 3 hours earlier than Eastern Time in Atlanta.

a. If you depart Atlanta tonight at 11:30 P.M., and all flights are on schedule, what time will you arrive in Seattle?

$$2\frac{1}{2} + 1\frac{1}{4} + 3\frac{3}{4} + 1\frac{1}{2} + \frac{3}{4} = 9\frac{3}{4} \text{ hours}$$

$$11:30 \text{ P.M.} + 9\frac{3}{4} \text{ hours} - 3 \text{ hour time difference} = \underline{\underline{6:15 \text{ A.M.}}}$$

b. If your return flight is scheduled to leave Seattle at 10:10 P.M. tomorrow night, with the same flight times and layovers in reverse, what time are you scheduled to arrive in Atlanta?

$$10:10 \text{ P.M.} + 9\frac{3}{4} \text{ hours} + 3 \text{ hour time difference} = \underline{\underline{10:55 \text{ A.M.}}}$$

c. If the leg from Dallas back to Atlanta is $\frac{2}{3}$ of an hour longer than scheduled due to headwinds, what time will you actually arrive?

$$\frac{2}{3} \text{ hour} = 40 \text{ minutes}$$

$$10:55 \text{ A.M.} + 40 \text{ minutes} = \underline{\underline{11:35 \text{ A.M.}}}$$

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REVIEW EXERCISES | CHAPTER 2—SECTION III

Multiply the following fractions and reduce to lowest terms. Use cancellation whenever possible.

1. $\frac{2}{3} \times \frac{4}{5} = \frac{8}{15}$
2. $\frac{5}{6} \times \frac{1}{4} = \frac{5}{24}$
3. $\frac{1}{\cancel{2}_1} \times \frac{\cancel{4}^2}{9} = \frac{2}{9}$
4. $\frac{\cancel{7}^1}{\cancel{8}_2} \times \frac{1}{3} \times \frac{\cancel{4}^1}{\cancel{7}_1} = \frac{1}{6}$
5. $\frac{\cancel{16}^2}{19} \times \frac{5}{\cancel{8}_1} = \frac{10}{19}$
6. $\frac{\cancel{25}^5}{51} \times \frac{2}{\cancel{5}_1} = \frac{10}{51}$
7. $\frac{\cancel{8}_1}{\cancel{11}_1} \times \frac{\cancel{33}^3}{\cancel{40}_5} \times \frac{4}{1} = \frac{12}{5}$
8. $\frac{2}{3} \times \frac{2}{\cancel{3}_1} \times \frac{\cancel{6}^2}{1} = \frac{8}{3} = 2\frac{2}{3}$
9. $8\frac{1}{5} \times 2\frac{2}{3} = \frac{41}{5} \times \frac{8}{3} = \frac{328}{15} = 21\frac{13}{15}$
10. $\frac{1}{\cancel{2}_1} \times \frac{\cancel{2}^1}{\cancel{3}_1} \times \frac{\cancel{4}^1}{\cancel{5}_1} \times \frac{\cancel{3}^1}{\cancel{4}_1} \times \frac{\cancel{5}^1}{1} = \frac{1}{1} = 1$
11. $\frac{1}{5} \times \frac{1}{5} \times \frac{1}{5} = \frac{1}{125}$
12. $\frac{2}{3} \times 5\frac{4}{5} \times 9 = \frac{2}{\cancel{3}_1} \times \frac{29}{5} \times \frac{\cancel{9}^3}{1} = \frac{174}{5} = 34\frac{4}{5}$

13. A recent market research survey showed that $\frac{3}{8}$ of the people interviewed preferred decaffeinated coffee over regular.

a. What fraction of the people preferred regular coffee?

$$\frac{8}{8} - \frac{3}{8} = \underline{\underline{\frac{5}{8}}} \text{ Preferred regular}$$

b. If 4,400 persons were interviewed, how many preferred regular coffee?

$$\frac{\overset{550}{\cancel{4,400}}}{1} \times \frac{5}{8} = \frac{2,750}{1} = \underline{\underline{2,750}} \text{ People preferred regular}$$

14. Katrina Byrd planned to bake a triple recipe of chocolate chip cookies for her office party. If the recipe calls for $1\frac{3}{4}$ cups of flour, how many cups will she need?

$$1\frac{3}{4} \times 3 = \underline{\underline{5\frac{1}{4}}} \text{ cups}$$

15. A driveway requires $9\frac{1}{2}$ truckloads of gravel. If the truck holds $4\frac{5}{8}$ cubic yards of gravel, how many total cubic yards of gravel are used for the driveway?

$$9\frac{1}{2} \times 4\frac{5}{8} = \frac{19}{2} \times \frac{37}{8} = \frac{703}{16} = \underline{\underline{43\frac{15}{16}}} \text{ Yards of gravel}$$

16. Molly Malone borrowed \$4,200 from the bank. If she has already repaid $\frac{3}{7}$ of the loan, what is the remaining balance owed to the bank?

$$\frac{\overset{600}{\cancel{4,200}}}{1} \times \frac{3}{7} = \frac{1,800}{1} = \$1,800 \text{ Already paid}$$

4,200 Total
-1,800
<u>\$2,400</u> Still owed

17. Magi Khoo's movie collection occupies $\frac{5}{8}$ of her computer's hard drive. Her photography takes up $\frac{1}{6}$ of the drive. The operating system, application software and miscellaneous files take up another $\frac{1}{12}$ of the drive. If her hard drive's capacity is 120 gigabytes, how many gigabytes of free space remain on the hard drive?

$$\frac{5}{8} + \frac{1}{6} + \frac{1}{12} = \frac{15 + 4 + 2}{24} = \frac{21}{24} = \frac{7}{8} \quad \text{Capacity used} \quad \frac{1}{8} \times 120 = \underline{\underline{15}} \quad \text{Gigabytes}$$

18. Three partners share a business. Sam owns $\frac{3}{8}$, Anita owns $\frac{2}{5}$, and David owns the rest. If the profits this year are \$150,000, how much does each partner receive?

$$\begin{array}{r} \text{Sam} \quad 150,000 \times \frac{3}{8} = \frac{150,000}{1} \times \frac{3}{8} = \frac{56,250}{1} = \underline{\underline{\$56,250}} \\ \text{Anita} \quad 150,000 \times \frac{2}{5} = \frac{150,000}{1} \times \frac{2}{5} = \frac{60,000}{1} = \underline{\underline{\$60,000}} \end{array}$$

$$\begin{array}{r} \text{David} \quad 56,250 \\ + 60,000 \\ \hline 116,250 \\ \underline{\underline{\$33,750}} \end{array}$$

Divide the following fractions and reduce to lowest terms.

19. $\frac{5}{6} \div \frac{3}{8}$

20. $\frac{7}{10} \div \frac{1}{5}$

21. $\frac{2}{3} \div \frac{5}{8}$

22. $7 \div \frac{4}{5}$

23. $\frac{1}{3} \div \frac{5}{6}$

24. $\frac{2}{3} \times \frac{8}{5} = \frac{16}{15} = 1\frac{1}{15}$

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

26. $21\frac{1}{2} \div 5\frac{2}{3}$

27. $18 \div \frac{18}{19}$

28. $12 \div 1\frac{3}{5}$

29. $\frac{15}{60} \div \frac{7}{10}$

30. $1\frac{1}{5} \div 10$

29. $\frac{24}{5} \times \frac{8}{7} = \frac{192}{35} = 5\frac{17}{35}$

30. $\frac{15}{60} \times \frac{10}{7} = \frac{15}{42} = \frac{5}{14}$

31. $\frac{18}{1} \times \frac{19}{18} = \frac{19}{1} = 19$

32. $\frac{12}{1} \times \frac{5}{8} = \frac{15}{2} = 7\frac{1}{2}$

33. $\frac{15}{60} \times \frac{10}{7} = \frac{15}{42} = \frac{5}{14}$

34. $\frac{6}{5} \times \frac{1}{10} = \frac{3}{25}$

31. Alpine Homes, Inc., a builder of custom homes, owns $126\frac{1}{2}$ acres of undeveloped land. If the property is divided into $2\frac{3}{4}$ -acre pieces, how many homesites can be developed?

$$126\frac{1}{2} \div 2\frac{3}{4} = \frac{253}{2} \div \frac{11}{4} = \frac{253}{2} \times \frac{4}{11} = \frac{46}{1} = \underline{\underline{46}} \text{ Homesites}$$

32. An automobile travels 365 miles on $16\frac{2}{3}$ gallons of gasoline.

- a. How many miles per gallon does the car get on the trip?

$$365 \div 16\frac{2}{3} = \frac{365}{1} \div \frac{50}{3} = \frac{365}{1} \times \frac{3}{50} = \frac{219}{10} = \frac{21}{10} \frac{9}{10} \text{ Miles per gallon}$$

- b. How many gallons would be required for the car to travel 876 miles?

$$876 \div 21 \frac{9}{10} = \frac{876}{1} \div \frac{219}{10} = \frac{876}{1} \times \frac{10}{219} = \frac{40}{1} = \underline{\underline{40}} \text{ Gallons}$$

33. Pier 1 purchased 600 straw baskets from a wholesaler.

- a. In the first week, $\frac{2}{5}$ of the baskets are sold. How many are sold?

$$\frac{600}{1} \times \frac{2}{5} = \frac{240}{1} = \underline{\underline{240}} \text{ Baskets sold first week}$$

- b. By the third week, only $\frac{3}{20}$ remain. How many baskets are left?

$$\frac{600}{1} \times \frac{3}{20} = \frac{90}{1} = \underline{\underline{90}} \text{ Baskets left third week}$$

T2-21**REVIEW EXERCISES | CHAPTER 2—SECTION III**

34. At the Cattleman's Market, $3\frac{1}{2}$ pounds of hamburger are to be divided into 7 equal packages. How many pounds of meat will each package contain?

$$3\frac{1}{2} \div 7 = \frac{7}{2} \times \frac{1}{7} = \underline{\underline{\frac{1}{2}}} \text{ Pound}$$

35. Magnum Hardware Supply Company buys nails in bulk from the manufacturer and packs them into $2\frac{4}{5}$ -pound boxes. How many boxes can be filled from 518 pounds of nails?

$$518 \div 2\frac{4}{5} = \frac{518}{1} \div \frac{14}{5} = \frac{518}{1} \times \frac{5}{14} = \frac{185}{1} = \underline{\underline{185}} \text{ Boxes}$$

36. The chef at the Sizzling Steakhouse has 140 pounds of sirloin steak on hand for Saturday night. If each portion is $10\frac{1}{2}$ ounces, how many sirloin steak dinners can be served? Round to the nearest whole dinner. (There are 16 ounces in a pound.)

$$\begin{array}{l} 140 \text{ lbs} \\ \times 16 \text{ oz} \\ \hline 2,240 \text{ Total ounces} \end{array} \quad 2,240 \div 10\frac{1}{2} = \frac{2,240}{1} \div \frac{21}{2} = \frac{2,240}{1} \times \frac{2}{21} = \frac{640}{3} = 213\frac{1}{3} = \underline{\underline{213}} \text{ Dinners}$$

37. Royal Reflective Signs makes speed limit signs for the state department of transportation. By law, these signs must be displayed every $\frac{5}{8}$ of a mile. How many signs will be required on a new highway that is $34\frac{3}{8}$ miles long?

$$34\frac{3}{8} \div \frac{5}{8} = \frac{275}{8} \div \frac{5}{8} = \frac{275}{8} \times \frac{8}{5} = \underline{\underline{55}} \text{ Signs}$$

38. Engineers at Fujitsu Electronics use special silver wire to manufacture fuzzy logic circuit boards. The wire comes in 840-foot rolls that cost \$1,200 each. Each board requires $4\frac{1}{5}$ feet of wire.

- a. How many circuit boards can be made from each roll?

$$840 \div 4\frac{1}{5} = \frac{840}{1} \div \frac{21}{5} = \frac{840}{1} \times \frac{5}{21} = \frac{200}{1} = \underline{\underline{200}} \text{ Circuit boards}$$

- b. What is the cost of wire per circuit board?

$$1,200 \div 200 = \underline{\underline{\$6}} \text{ Each}$$

39. You are making a batch of corn flake-crust chicken for a party. The recipe calls for one pound of crushed corn flakes. How many $\frac{11}{16}$ ounce individual-sized boxes will it take to make the chicken? (There are 16 ounces in a pound.)

$$16 \div \frac{11}{16} = \frac{16}{1} \times \frac{16}{11} = \frac{256}{11} = \underline{\underline{23\frac{3}{11}}} \text{ Boxes}$$

DINNER SPECIAL

40. You are the owner of The Gourmet Diner. On Wednesday nights you offer a special of “Buy one dinner, get one free dinner—of equal or lesser value.” Michael and Ernie come in for the special. Michael chooses chicken Parmesan for \$15, and Ernie chooses a \$10 barbecue-combo platter.

- a. Excluding tax and tip, how much should each pay for their share of the check?

$$\text{Michael } \frac{15}{25} = \frac{3}{5} \qquad \frac{3}{5} \times 15 = \underline{\underline{\$9}}$$

$$\text{Ernie } \frac{10}{25} = \frac{2}{5} \qquad \frac{2}{5} \times 15 = \underline{\underline{\$6}}$$

- b. If sales tax and tip amount to $\frac{1}{5}$ of the total of the two dinners, how much is that?

$$\frac{1}{5} \times \frac{25}{1} = \underline{\underline{\$5}}$$

- c. If they decide to split the tax and tip in the same ratio as the dinners, how much more does each owe?

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

$$\frac{2}{5} \times 5 = \underline{\underline{\$2}}$$