

Section 6.1 Percents, Fractions, and Decimals

Section 6.1 Practice Exercises

1. percent

$$3. \frac{84}{100} = 84\%$$

$$5. \frac{10}{100} = 10\%$$

$$7. \frac{\$2}{\$100} = 2\%$$

$$9. \frac{70}{100} = 70\%$$

11. Replace the symbol % by $\times \frac{1}{100}$ (or $\div 100$).

Then simplify the fraction to lowest terms.

$$13. 3\% = 3 \times \frac{1}{100} = \frac{3}{100}$$

$$15. 84\% = 84 \times \frac{1}{100} = \frac{84}{100} = \frac{21}{25}$$

$$17. 3.4\% = 3.4 \times \frac{1}{100} = \frac{3.4}{100} = \frac{34}{1000} = \frac{17}{500}$$

$$19. 115\% = 115 \times \frac{1}{100} = \frac{115}{100} = \frac{23}{20} \text{ or } 1\frac{3}{20}$$

$$21. 0.5\% = 0.5 \times \frac{1}{100} = \frac{0.5}{100} = \frac{5}{1000} = \frac{1}{200}$$

$$23. 0.25\% = 0.25 \times \frac{1}{100} = \frac{0.25}{100} = \frac{25}{10,000} \\ = \frac{1}{400}$$

$$25. 5\frac{1}{6}\% = \frac{31}{6} \times \frac{1}{100} = \frac{31}{600}$$

$$27. 124\frac{1}{2}\% = \frac{249}{2} \times \frac{1}{100} = \frac{249}{200}$$

29. Replace the % symbol by $\times 0.01$ (or $\div 100$).

$$31. 58\% = 58 \times 0.01 = 0.58$$

$$33. 8.5\% = 8.5 \times 0.01 = 0.085$$

$$35. 142\% = 142 \times 0.01 = 1.42$$

$$37. 0.55\% = 0.55 \times 0.01 = 0.0055$$

$$39. 26\frac{2}{5}\% = 26\frac{4}{10} \times 0.01 = 26.4 \times 0.01 = 0.264$$

$$41. 55\frac{1}{20}\% = 55\frac{5}{100} \times 0.01 = 55.05 \times 0.01 \\ = 0.5505$$

$$43. 0.27 = 0.27 \times 100\% = 27\%$$

$$45. 0.19 = 0.19 \times 100\% = 19\%$$

$$47. 1.75 = 1.75 \times 100\% = 175\%$$

$$49. 0.124 = 0.124 \times 100\% = 12.4\%$$

$$51. 0.006 = 0.006 \times 100\% = 0.6\%$$

$$53. 1.014 = 1.014 \times 100\% = 101.4\%$$

$$55. \frac{71}{100} = \frac{71}{100} \times 100\% = \frac{71}{\cancel{100}^1} \times \frac{\cancel{100}^1}{1}\% \\ = 71\%$$

$$57. \frac{7}{8} = \frac{7}{8} \times 100\% = \frac{7}{8} \times \frac{100}{1}\% = \frac{700}{8}\% \\ = 87.5\% \text{ or } 87\frac{1}{2}\%$$

$$59. \frac{5}{6} = \frac{5}{6} \times 100\% = \frac{5}{6} \times \frac{100}{1}\% = \frac{500}{6}\% \\ = 83.\bar{3}\% \text{ or } 83\frac{1}{3}\%$$

$$61. 1\frac{3}{4} = \frac{7}{4} \times 100\% = \frac{7}{4} \times \frac{\cancel{100}^{25}}{1}\% = 175\%$$

$$63. \frac{11}{9} = \frac{11}{9} \times 100\% = \frac{11}{9} \times \frac{100}{1}\% = \frac{1100}{9}\% \\ = 122.\bar{2}\% \text{ or } 122\frac{2}{9}\%$$

$$65. 1\frac{2}{3} = \frac{5}{3} \times 100\% = \frac{5}{3} \times \frac{100}{1}\% = \frac{500}{3}\% \\ = 166.\bar{6}\% \text{ or } 166\frac{2}{3}\%$$

$$\begin{aligned}
 67. \quad \frac{3}{7} &= \frac{3}{7} \times 100\% \\
 &= \frac{3}{7} \times \frac{100}{1} \% \\
 &= \frac{300}{7} \% \\
 &\approx 42.9\%
 \end{aligned}$$

$$\begin{array}{r}
 42.85 \\
 7 \overline{) 300.00} \\
 \underline{-28} \\
 20 \\
 \underline{-14} \\
 60 \\
 \underline{-56} \\
 40 \\
 \underline{-35} \\
 5
 \end{array}$$

$$\begin{aligned}
 69. \quad \frac{1}{13} &= \frac{1}{13} \times 100\% \\
 &= \frac{1}{13} \times \frac{100}{1} \% \\
 &= \frac{100}{13} \% \\
 &\approx 7.7\%
 \end{aligned}$$

$$\begin{array}{r}
 7.69 \\
 13 \overline{) 100.00} \\
 \underline{-91} \\
 90 \\
 \underline{-78} \\
 120 \\
 \underline{-117} \\
 3
 \end{array}$$

$$\begin{aligned}
 71. \quad \frac{5}{11} &= \frac{5}{11} \times 100\% \\
 &= \frac{5}{11} \times \frac{100}{1} \% \\
 &= \frac{500}{11} \% \\
 &\approx 45.5\%
 \end{aligned}$$

$$\begin{array}{r}
 45.45 \\
 11 \overline{) 500.00} \\
 \underline{-44} \\
 60 \\
 \underline{-55} \\
 50 \\
 \underline{-44} \\
 60 \\
 \underline{-55} \\
 5
 \end{array}$$

$$\begin{aligned}
 73. \quad \frac{13}{15} &= \frac{13}{15} \times 100\% \\
 &= \frac{13}{15} \times \frac{100}{1} \% \\
 &= \frac{1300}{15} \% \\
 &\approx 86.7\%
 \end{aligned}$$

$$\begin{array}{r}
 86.66 \\
 15 \overline{) 1300.00} \\
 \underline{-120} \\
 100 \\
 \underline{-90} \\
 100 \\
 \underline{-90} \\
 100 \\
 \underline{-90} \\
 10
 \end{array}$$

$$75. \quad 66\frac{2}{3}\% = \frac{200}{3} \times \frac{1}{100} = \frac{200}{300} = \frac{2}{3}$$

c

$$77. \quad 90\% = 90 \times \frac{1}{100} = \frac{90}{100} = \frac{9}{10}$$

e

$$79. \quad 25\% = 25 \times \frac{1}{100} = \frac{25}{100} = \frac{1}{4}$$

f

$$81. \quad 0.30 = 0.30 \times 100\% = 30\%$$

e

$$83. \quad 5 = 5 \times 100\% = 500\%$$

f

$$85. \quad 0.05 = 0.05 \times 100\% = 5\%$$

a

$$87.(a) \quad \frac{1}{4} = \frac{25}{100} = 0.25$$

$$\frac{1}{4} \times 100\% = \frac{100}{4} \% = 25\%$$

$$(b) \quad 0.92 = \frac{92}{100} = \frac{23}{25}$$

$$0.92 \times 100\% = 92\%$$

$$(c) \quad 15\% = 15 \times \frac{1}{100} = \frac{15}{100} = \frac{3}{20}$$

$$15\% = 15 \times 0.01 = 0.15$$

$$(d) \quad 1.6 = \frac{16}{10} = \frac{8}{5} \text{ or } 1\frac{3}{5}$$

$$1.6 \times 100\% = 160\%$$

$$(e) \quad \frac{1}{100} = 0.01$$

$$\frac{1}{100} = 1\%$$

$$\begin{aligned}
 (f) \quad 0.8\% &= 0.8 \times \frac{1}{100} = \frac{8}{10} \times \frac{1}{100} = \frac{8}{1000} \\
 &= \frac{1}{125}
 \end{aligned}$$

$$0.8\% = 0.8 \times 0.01 = 0.008$$

$$89.(a) \quad 14\% = 14 \times \frac{1}{100} = \frac{14}{100} = \frac{7}{50}$$

$$14\% = 14 \times 0.01 = 0.14$$

$$(b) \quad 0.87 = \frac{87}{100}$$

$$0.87 = 0.87 \times 100\% = 87\%$$

$$(c) \quad 1 = \frac{1}{1} \text{ or } 1$$

$$1 = 1 \times 100\% = 100\%$$

$$(d) \quad \frac{1}{3} = 0.\bar{3}$$

$$\frac{1}{3} = \frac{1}{3} \times 100\% = \frac{100}{3} \%$$

$$= 33.\bar{3}\% \text{ or } 33\frac{1}{3}\%$$

$$(e) 0.2\% = 0.2 \times \frac{1}{100} = \frac{2}{10} \times \frac{1}{100} = \frac{2}{1000}$$

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

$$0.2\% = 0.2 \times 0.01 = 0.002$$

$$(f) \frac{19}{20} = \frac{95}{100} = 0.95$$

$$\frac{19}{20} = \frac{19}{20} \times 100\% = \frac{19}{\cancel{20}^1} \times \frac{\cancel{100}^5}{1} \%$$

$$= 95\%$$

$$91. \frac{1}{4} = \frac{1}{4} \times 100\% = \frac{1}{4} \times \frac{100}{1} \% = \frac{100}{4} \% = 25\%$$

$$93. \frac{1}{10} = \frac{1}{10} \times 100\% = \frac{1}{10} \times \frac{100}{1} \% = \frac{100}{10} \%$$

$$= 10\%$$

$$95. 9.6\% = 9.6 \times 0.01 = 0.096$$

$$9.6\% = 9.6 \times \frac{1}{100} = \frac{\cancel{96}^{24}}{10} \times \frac{1}{\cancel{100}^{25}}$$

$$= \frac{\cancel{24}^{12}}{\cancel{10}^5} \times \frac{1}{25} = \frac{12}{125}$$

$$97. 8.4\% = 8.4 \times 0.01 = 0.084$$

$$8.4\% = 8.4 \times \frac{1}{100} = \frac{84}{10} \times \frac{1}{100} = \frac{84}{1000}$$

$$= \frac{21}{250}$$

$$18.2\% = 18.2 \times \frac{1}{100} = \frac{182}{10} \times \frac{1}{100}$$

$$= \frac{182}{1000} = \frac{91}{500}$$

$$99. \text{The fraction } \frac{1}{2} = 0.5 \text{ and}$$

$$\frac{1}{2}\% = 0.5\% = 0.005.$$

$$101. 25\% = 0.25 \text{ and } 0.25\% = 0.0025.$$

$$103. \text{ a, c}$$

$$105. \text{ a, c}$$

$$107. 1.4 = 1.4 \times 100\% = 140\%$$

$$1.4 > 100\%$$

$$109. 0.052 = 0.052 \times 100\% = 5.2\%$$

$$0.052 < 50\%$$