Pre-Algebra
Homework 5: Fractions III: Answers

(1) $\frac{1}{2} \times 5 = \frac{5}{2} = 2\frac{1}{2}$

(2) $\frac{4}{7} \times 7 = 4$

(3) $\frac{1}{2} \times \frac{2}{3} = \frac{1}{3}$

(4) $\frac{1}{3} \times \frac{7}{12} = \frac{7}{36}$

(5) $\frac{1}{b} \times 7 = \frac{7}{b}$

(6) $\frac{9}{11} \times g = \frac{9g}{11}$

(7) $3\frac{1}{3} \times \frac{1}{6} = \frac{10}{3} \times \frac{1}{6} = \frac{10}{18} = \frac{5}{9}$

(8) $4\frac{1}{2} \times \frac{2}{y} = \frac{9}{2} \times \frac{2}{y} = \frac{18}{2y} = \frac{9}{y}$

(9) $2 \times \frac{3}{4} = n = 1\frac{1}{2}$

(10) $\frac{2}{3} \times 20 = n = 13\frac{1}{3}$

(11) 75% is $\frac{3}{4}$ of a tank. $\frac{3}{4} \times 18 = 13\frac{1}{2}$ gal

(12) $25 \times \frac{2}{3} = \frac{50}{3} = 16\frac{2}{3}$ pounds of clay

Write the quotient in lowest terms.

(13) $\frac{1}{2} \div 3 = \frac{1}{2} \times \frac{1}{3} = \frac{1}{6}$

(14) $\frac{1}{4} \div 5 = \frac{1}{4} \times \frac{1}{5} = \frac{1}{20}$

(15) $\frac{7}{2} \div \frac{2}{3} = \frac{7 \times 3}{2 \times 2} = \frac{21}{4} = 5\frac{1}{4}$

(16) $\frac{3}{5} \div \frac{1}{5} = \frac{3}{5} \times \frac{5}{1} = 3$

(17) $\frac{11}{10} \div \frac{7}{2} = \frac{11}{10} \times \frac{2}{7} = \frac{22}{70} = \frac{11}{35}$

(18) $4\frac{1}{2} \div \frac{9}{11} = \frac{9}{2} \times 119 = \frac{11}{2}$

(19) $3\frac{1}{3} \div \frac{1}{x} = \frac{10}{3} \times \frac{x}{1} = \frac{10x}{3} = 3\frac{x}{3}$

(20) $2\frac{2}{5} \div \frac{3}{4n} = \frac{12}{5} \times \frac{4n}{3} = \frac{16n}{5}$

Write an expression and solve.

(21) Divide the length by the number of students.

$$18\frac{1}{2} \div 4 = \frac{37}{4} \times \frac{1}{4} = \frac{37}{8} = 6\frac{5}{8}$$

(22) Divide the length of fabric by the yards needed for a small pillow.

$$3\frac{1}{3} \div \frac{5}{6} = \frac{10}{3} \times \frac{6}{5} = \frac{60}{15} = \frac{20}{5} = 4$$

(23) Let x be the number of miles between Jane's home and the airport. We must divide the total number of miles by $\frac{1}{2}$ to find the number of \$0.75 increments the cab will charge. \$0.75 is $\frac{3}{4}$ of a dollar.

$$\begin{aligned} 2.0 + \frac{3}{4} \times (x \div \frac{1}{2}) &= 8\frac{1}{2} \\ 2.0 + \frac{3}{4} \times 2x - 2.0 &= 8\frac{1}{2} - 2.0 \\ \frac{6x}{4} &= 6\frac{1}{2} \\ x &= \frac{13}{2} \times 46 \\ x = \frac{26}{6} = \frac{13}{3} &= 4\frac{1}{3} miles \end{aligned}$$

(24) Let x be the number of subscribers last month. $\frac{1}{4}$ times the number of subscribers last month is equal to the additional number of subscribers this month (3125 - x).

$$\begin{aligned} 3125 - x &= x \times \frac{1}{4} \\ 3125 = x \times \frac{1}{4} + x &= x(\frac{1}{4} + 1) \\ 3125 &= x(1\frac{1}{4}) = x\frac{5}{4} \\ 3125(\frac{4}{5}) &= x \\ x &= 625 \times 4 = 2500 \end{aligned}$$

Check your work
One fourth of the number of subscribers from last month (2500) added to the number of subscribers last month must equal 3125. $2500 * \frac{1}{4} = 625$ and $625 + 2500 = 3125$ subscribers