

3.6 Warm-Up:

1. A chocolate chip cookie recipe calls for $2\frac{1}{4}$ cups of flour and $\frac{3}{4}$ cup of brown sugar. Find the ratio of brown sugar to flour.

$$2\frac{1}{4} : \frac{3}{4}$$
$$\frac{9}{4} : \frac{3}{4}$$
$$3 : 1$$

Solve the proportion.

2. $\frac{a}{7} = \frac{9}{21}$ $\frac{a}{\cancel{7}} = \frac{\cancel{9}}{\cancel{21} \cdot 3}$ $a = 3$

3. $\frac{32}{28} = \frac{m}{14}$ $28 \div 14 = 2$ $32 \div 2 = 16 = m$

4. A printer can print 12 color pages in 3 minutes. How many color pages can the printer print in 9 minutes? Write and solve a proportion to find the answer.

$$\frac{3}{9} = \frac{12}{x}$$
$$\frac{\cancel{3}^3}{\cancel{9}_3} = \frac{12}{x}$$
$$x = 36 \text{ pages.}$$

How do we know if two fractions are equivalent?

$$\frac{3}{4} = \frac{6 \div 2}{8 \div 2} = \frac{3}{4}$$

Have we heard of the cross product or cross multiplying?

-Why does it work? (this example will work for all fractions)

$$\frac{2}{3} = \frac{2 \times 3}{3 \times 3}$$

$$\frac{2}{3} \neq \frac{6}{9}$$

$$\frac{2}{3} \neq \frac{2}{3}$$

$$2 \cdot 9 = 3 \cdot 6$$
$$18 = 18$$

$$2 \cdot 3 = 3 \cdot 2$$

Solve the proportion $\frac{8}{x} = \frac{6}{15}$. Use the cross product property.

$$\frac{8}{x} = \frac{6}{15}$$

$$\frac{8 \div 4}{20 \div 4} = \frac{2}{5}$$

$$8 \cdot 15 = 6 \cdot x$$

$$\frac{6 \div 3}{15 \div 3} = \frac{2}{5}$$

$$\frac{120}{6} = \frac{6x}{6}$$

$$20 = x$$

What is the value of x in the proportion $\frac{4}{x} = \frac{8}{x-3}$?

$$\frac{4}{x} \rightarrow \frac{8}{x-3} \quad x = -3$$

$$4(x-3) = 8x$$

$$\begin{array}{r} 4x - 12 = 8x \\ -4x \qquad \qquad -4x \\ \hline -12 = 4x \end{array}$$

$$\frac{4}{-3} = \frac{8}{-3-3}$$

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

Solve the proportion. Check your solution.

$$1. \frac{4}{a} = \frac{24}{30}$$

$$4 \cdot 30 = 24a$$

$$\frac{120}{24} = \frac{24a}{24}$$

$$5 = a$$

$$2. \frac{3}{x} = \frac{2}{x-6}$$

$$3(x-6) = 2x$$

$$3x - 18 = 2x$$

$$\begin{array}{r} 3x - 18 = 2x \\ -3x \quad -3x \\ \hline \end{array}$$

$$-18 = -1x$$

$$18 = x$$

$$3. \frac{m}{5} = \frac{m-6}{4}$$

$$4m = 5(m-6)$$

$$4m = 5m - 30$$

$$\begin{array}{r} 4m = 5m - 30 \\ -5m \quad -5m \\ \hline \end{array}$$

$$-1m = -30$$

$$m = 30$$

Alicia is making her own potting soil. For every 4 buckets of peat moss, she mixes in 3 buckets of perlite. Suppose she uses 10 buckets of peat moss. How many buckets of perlite should she use? Write and solve a proportion.

4 peat moss : 3 buckets perlite

10 peat moss : X buckets perlite

$$\frac{4}{3} = \frac{10}{X}$$

$$4x = 3 \cdot 10$$

$$\frac{4x}{4} = \frac{30}{4}$$

$$x = 7.5 \text{ buckets of perlite}$$

A 1500 pound steer needs approximately 20 pounds of feed per day. Approximately how much feed will an 1100 pound steer need per day? Write and solve a proportion.

1500 lb get 20 lbs

1100 lb get x lbs

$$\frac{1500}{20} = \frac{1100}{x}$$

OR

$$\frac{\cancel{1500}}{\cancel{1100}} = \frac{20}{x}$$

$$\frac{1500x = 22000}{1500} \quad \frac{\cancel{1500}x = \cancel{22000}}{\cancel{1500}}$$
$$x = 14.6 \text{ lbs}$$

$$\frac{15}{11} = \frac{20}{x} \quad 15x = 220$$
$$x = 14.6$$

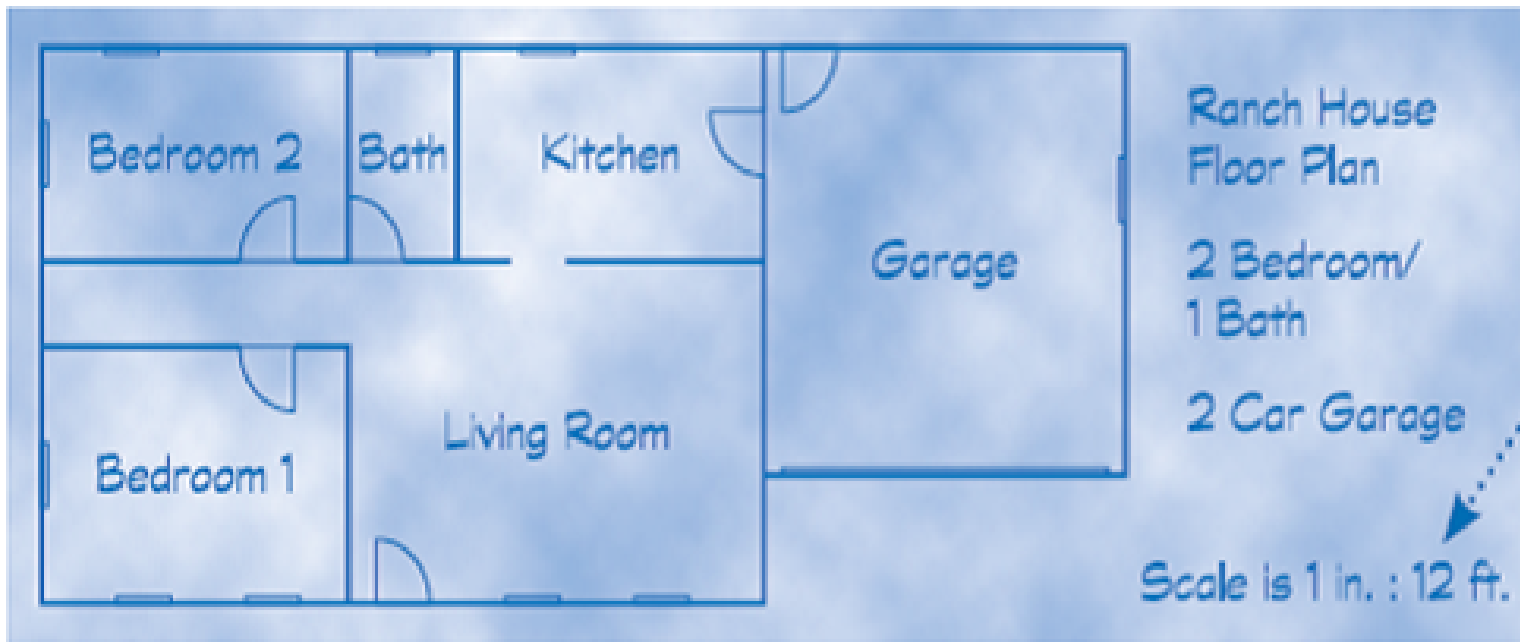
Look at scale drawings.

(2-D) scale drawing : make pic bigger or smaller

(3-D) scale model - globe, cars, tractors
scale

↳ ratio

scale : actual



A scale should be written as
scale measure:
actual measure.

1 in : 12 ft

If the actual length of the garage is 21 feet, how long should it measure on the blueprint?

$$21 \cdot \frac{1}{12} = \frac{x}{21} \cdot 21$$

$$x = 1.75 \text{ in.}$$

If the hallway width is .25 inches on the blueprint, what is the actual width?

$$\frac{1}{12} = \frac{.25}{x}$$

$$1x = 12 \cdot .25$$

$$x = 3 \text{ ft.}$$

Homework:

p 171-2

#'s 2-16, 19, 21, 33-38

Quiz next time~!