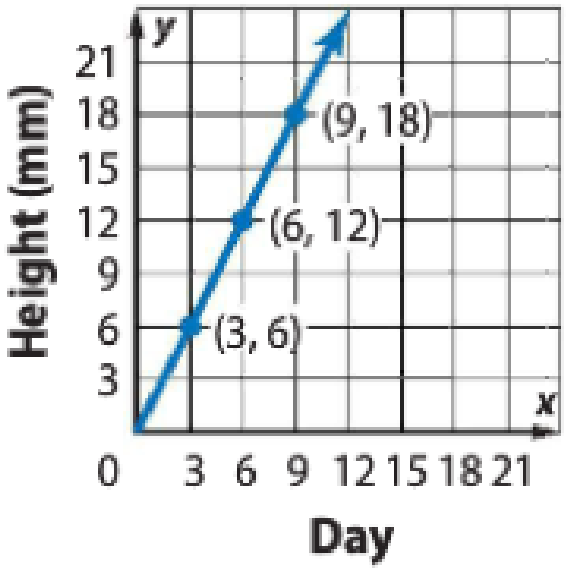
Bell Ringer

Keith plants a seed. Every three days after the seed sprouts he measures the height of the plant. The graph shows his results.

a. Find and interpret the constant of proportionality.

b. Explain what the points (0, 0), (1, 2), and (6, 12) represent.



a. Constant is 2/1. This means the plant grows 2mm per day.

b. (6 , 12) means the plant has grown 12mm in 6 days.

Solving Proportion Notes

Proportion: an equation stating that two ratios or rates are equal.
the cross products of proportions are equal.

Solving proportion problems

A. Equivalent Rates Method
B. Cross Products Method

Solve using the Equivalent Rates Method

1) $\frac{2}{7} = \frac{6}{c}$

$\frac{2}{7} \xrightarrow{\times 3} \frac{6}{21}$

$c = 21$

2) $\frac{w}{5} = \frac{200}{25}$

$\div 5$

$\div 5$

$w = 40$

Solve using the Cross Products Method. Round to the nearest tenth.

3) $\frac{9}{51} = \frac{x}{34}$

$\frac{51x}{51} = \frac{306}{51}$

$x = 6$

4) $\frac{36}{n} = \frac{15}{9}$

$15n = 324$

$n = 21.6$

Write a proportion and solve for the variable.

5) 178 calories in 3 servings;
c calories in 8 servings

$$\frac{178}{3} = \frac{c}{8} \quad \text{or} \quad \frac{3}{178} = \frac{8}{c}$$

$$3c = 1424$$

$$c = 474.7 \text{ calories}$$

6) You hike 2 miles in 3 hours. At this rate, how many miles could you hike in 7 hours? (Answer as a mixed number)

$$\frac{2}{3} = \frac{x}{7}$$

$$\frac{3x}{3} = \frac{14}{3}$$

$$x = \frac{14}{3} = 4\frac{2}{3} \text{ miles}$$

7) Hair grows 0.7cm in two weeks. How many days does it take for hair to grow 14cm?

$$\frac{.7\text{cm}}{14\text{ days}} = \frac{14\text{cm}}{x\text{ days}}$$

*must convert weeks into days

$$\frac{.7x}{.7} = \frac{196}{.7}$$

$$x = 280 \text{ days}$$

Challenge Proportion Problem

8) $\frac{7}{4} = \frac{x+2}{20}$

$4(x+2) = 140$

$4x + 8 = 140$

$-8 \quad -8$

$\frac{4x}{4} = \frac{132}{4}$

$x = 33$