

Are the following ratios proportional?

$$\frac{10}{12} \quad \times \quad \frac{15}{18}$$

Handwritten annotations: The number 180 is written above the 10 in the first fraction and above the 15 in the second fraction. A large blue 'X' is drawn between the two fractions, with arrows pointing from the 'X' to the numerators and denominators of both fractions, indicating that the ratios are not proportional.

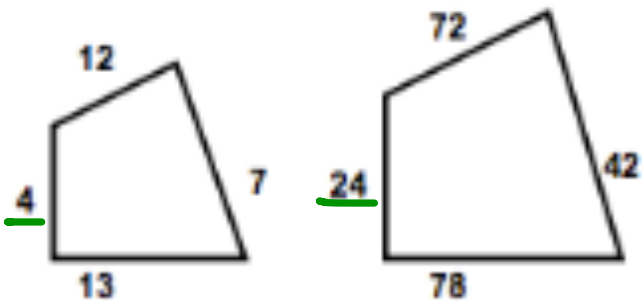
105 is 70% of what number?

$$\frac{105}{x} = \frac{70}{100}$$

$$\frac{10500}{70} = \frac{70x}{70}$$

$$(150 = x)$$

Are the following figures similar?



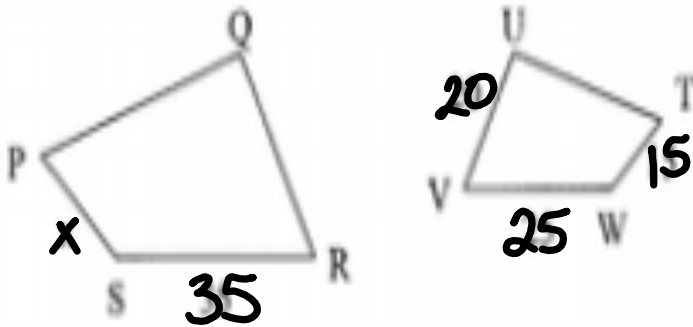
$$\frac{4}{24} = \frac{1}{6}$$

$$\frac{7}{42} = \frac{1}{6}$$

$$\frac{12}{72} = \frac{1}{6}$$

$$\frac{13}{78} = \frac{1}{6}$$

The following two shapes are similar, find x:



$$21 = x$$

A frog can croak 15 times in 45 seconds.  
How many seconds will it take a frog to  
croak 260 times?

$$\frac{15}{45} = \frac{260}{x}$$

$$\frac{15x}{15} = \frac{11700}{15}$$

$$x = 780 \text{ sec}$$

Solve for x:

$$-3(x - 4) - 9x = -10x + 16$$

$$-3x + 12 - 9x = -10x + 16$$

$$-12x + 12 = -10x + 16$$

$$+10x \quad +10x$$
$$-2x + 12 = 16$$

$$-12 \quad -12$$

$$-2x = 4$$

$$x = -2$$

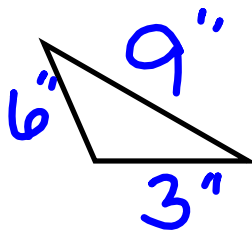
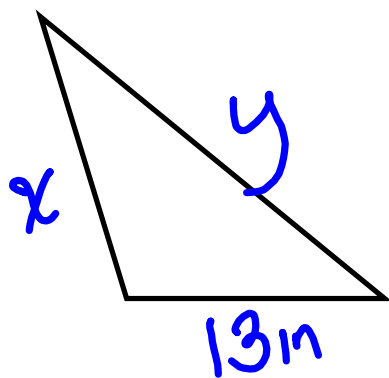
Lauren has \$40 and is saving \$20 a week babysitting. Kevin has \$145 and is spending \$15 a week on food. After how many weeks will they have the same amount of money?

$$40 + 20w = 145 - 15w$$

$$\begin{array}{r} +15w \\ 40 + 35w = 145 \\ -40 \quad -40 \\ \hline 35w = 105 \\ \hline 35 \quad 35 \end{array}$$

$$w = 3 \text{ weeks}$$

Sam wants to enlarge a triangle with side length 3 in, 6 in, and 9 in. If the shortest side of the new triangle is 13 in, how long will the other two sides be?



$$\frac{3}{13} = \frac{6}{x}$$

$$\frac{3x}{3} = \frac{78}{3}$$

$$x = 26\text{ in}$$

$$\frac{3}{13} = \frac{9}{y}$$

$$\frac{117}{3} = \frac{3y}{3}$$

$$39\text{ in} = y$$