

Math 107
Spring 2017
Lecture 8

Translate Only:

The **product** of **some number** **and**
1 less than twice the number **is equal to**
45. Use x for the number.

$$x \cdot (2x - 1) = 45$$

What percent of 12600 is 567?

$$\frac{P}{100} \cdot 12600 = 567$$

$$126P = 567 \quad P = \frac{567}{126} \quad P = 4.5$$

4.5% of 12600 is 567

$$\frac{P}{100} = \frac{\text{Part}}{\text{Whole}}$$

$$\frac{P}{100} = \frac{567}{12600}$$

$$12600P = 56700$$

$$P = \frac{56700}{12600}$$

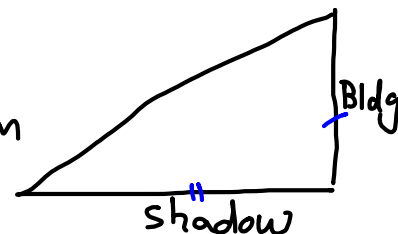
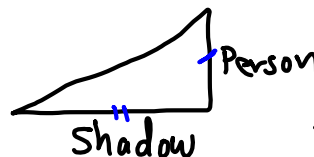
Cross-Multiply

$$P = 4.5$$

A 5.5 ft tall person had a shadow of 24 ft.

At the same time, A tall building had a shadow of 72 ft. Find the height of the building.

$$\frac{5.5 \text{ ft}}{24 \text{ ft}} = \frac{x \text{ ft}}{72 \text{ ft}}$$



Solve

$$\frac{5.5}{24} = \frac{x}{72}$$

$$24x = 72(5.5)$$

$$x = \frac{72(5.5)}{24}$$

$$x = 16.5$$

16.5
ft tall

Lisa has 62 Coins.

$$N + D + Q = 62$$

Nickels, Dimes, and Quarters.

The number of dimes is 3 more than twice the number of nickels.

$$\text{Nickel} \rightarrow x$$

$$\text{Dime} \rightarrow 2x + 3$$

The number of quarters is 1 less than three times the number of nickels. How many of each does she have?

$$\text{Quarters} \rightarrow 3x - 1$$

$$x + 2x + 3 + 3x - 1 = 62$$

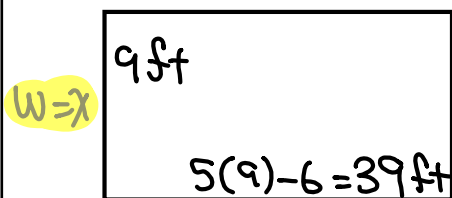
$$6x + 2 = 62 \rightarrow 6x = 60$$

$$6x = 62 - 2 \quad x = \frac{60}{6} \quad x = 10$$

10 Nickels
23 Dimes
29 Quarters

Perimeter of a rectangle is 96 ft.

Its length is 6 ft shorter than 5 times its width. Find its dimensions. $P = 96$



$$L = 5x - 6$$

9 ft by 39 ft

$$2L + 2W = 96$$

$$2(5x - 6) + 2(x) = 96$$

$$10x - 12 + 2x = 96$$

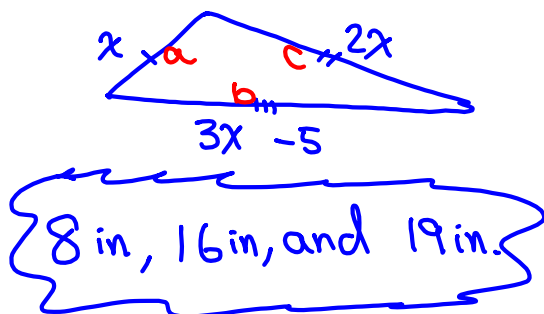
$$12x - 12 = 96$$

$$12x = 108$$

$$x = \frac{108}{12} \quad x = 9$$

In a triangular garden, one side is twice another side.

The third side is 5 inches shorter than the sum of other two sides. Find all three sides if the perimeter is 43 inches.



$$P = 43$$

$$a + b + c = 43$$

$$x + 3x - 5 + 2x = 43$$

$$6x - 5 = 43$$

$$6x = 48$$

$$x = 48/6 \quad \boxed{x=8}$$

Find two consecutive integers such that the sum of twice the smaller and 3 times the larger one is 88.

$$\rightarrow x \text{ \& } x+1$$

$$2 \cdot \text{Smaller} + 3 \cdot \text{larger} = 88 \quad \boxed{17 \text{ \& } 18}$$

$$2 \cdot x + 3 \cdot (x+1) = 88 \quad \boxed{2 \cdot 17 + 3 \cdot 18 = 88} \quad \checkmark$$

$$2x + 3x + 3 = 88$$

$$5x + 3 = 88$$

$$5x = 88 - 3$$

$$\rightarrow 5x = 85$$

$$x = \frac{85}{5} \quad \boxed{x=17}$$

Find two consecutive even integers Such that 4 times the smaller one reduced by larger one is equal to 64.

$$\rightarrow x \text{ \& \# } x+2$$

$$4 \cdot \text{Smaller} - \text{larger} = 64$$

$$4x - (x+2) = 64$$

$$4x - x - 2 = 64$$

$$3x - 2 = 64$$

$$3x = 66$$

$$\rightarrow x = \frac{66}{3}$$

$$\boxed{x=22}$$

$$22 \text{ \& \# } 24.$$

Find two consecutive odd integers Such that twice the larger one is equal to the difference of 165 and 5 times the Smaller one.

$$\rightarrow x \text{ \& \# } x+2$$

$$2 \cdot \text{larger} = 165 - 5 \cdot \text{Smaller}$$

$$2(x+2) = 165 - 5x$$

$$2x + 4 = 165 - 5x$$

$$2x + 5x = 165 - 4$$

$$\boxed{23 \text{ \& \# } 25}$$

$$7x = 161 \quad x = 23$$

Ch. 1 - 6

Due Next week