Math 107

Fall 2016

Lecture 8

Translate only:

Twice the difference between 10 and Some number is equal to the sum of Square of the number and −10.

$$2(10 - x) = x^2 + (-10)$$

$$2(10 - x) = x^2 - 10$$

What percent of 400 is 25?

$$\frac{P}{100} = \frac{\text{Part}}{\text{whole}}$$ "whole comes after of"

$$\frac{P}{100} = \frac{25}{400}$$ Cross-multiply

$400P = 25(100)$

$$P = \frac{25(100)}{400} = \frac{25}{4} = 6.25$$

6.25% of 400 is 25.

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72 of 120 students had iphone.
At this rate, how many students have iPhone if we have 4000 students?

$$\frac{72 \text{ iPhone}}{120 \text{ Students}} = \frac{x \text{ iPhone}}{4000 \text{ Students}}$$

$$\frac{72}{120} = \frac{x}{4000}$$ Cross-Multiply

$120x = 72(4000)$

$$x = \frac{72(4000)}{120}$$

$x = 2400$

2400 students have iPhone.

In a townhall meeting, there were 67 people. The number of females was 1 fewer than 3 times the number of males. How many of each?

Females → $3x - 1$

Males → x

Total = 67

Males + Females = 67

$x + (3x - 1) = 67$

$4x - 1 = 67$

$4x = 67 + 1$

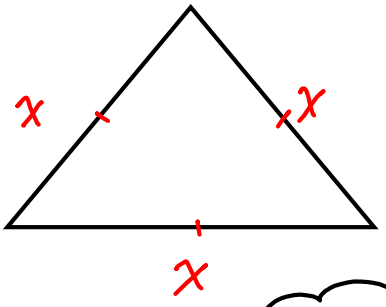
$4x = 68$

$x = \frac{68}{4}$ $x = 17$

$3(17) - 1 = 51 - 1 = 50$

17 Males & 50 Females

A triangular billboard has a perimeter of 57 ft. All 3 sides are equal. Find how long each side is.



$P = 57$

$a + b + c = 57$

$x + x + x = 57$

$3x = 57$

$x = \frac{57}{3}$ $x = 19$

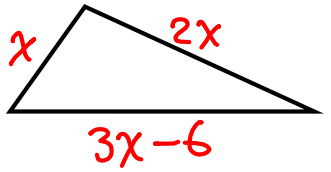
each side is 19 ft.

The perimeter of a triangular garden is 66 meters.

One side is twice another side.

The third side is 6 m shorter than 3 times the shorter side of first two sides.

Find all 3 sides.



Side 1 → x → 12 m

Side 2 → 2x → 24 m, and

Side 3 → 3x-6 → 30m

$P = 66$

$a + b + c = 66$

$x + 2x + 3x - 6 = 66$

$6x - 6 = 66$

$6x = 66 + 6$

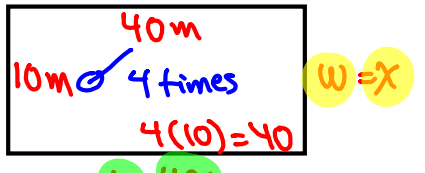
$6x = 72$

$x = \frac{72}{6}$

$x = 12$

The length of a rectangular room is 4 times its width.

The perimeter is 100 m.



1) find its dimensions.

10m by 40m

2) find its area.

$P = 100$

$L = 4x$

$2L + 2W = 100$

$2(4x) + 2(x) = 100$

$8x + 2x = 100$

$10x = 100$

$x = \frac{100}{10}$

$x = 10$

3) find cost for carpet if it is \$4/sqr. meter.

$A = LW$

$= 40(10)$

$A = 400\ m^2$

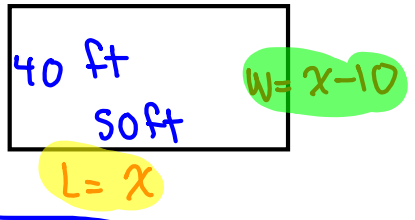
$Cost = 4(400)$

\$1600

The width of a rectangular field is 10 ft shorter than its length.

The perimeter is 180 ft.

find its area.



$P = 180$

$2L + 2W = 180$

$2x + 2(x-10) = 180$

$2x + 2x - 20 = 180$

$4x - 20 = 180$

$4x = 180 + 20$

$4x = 200$

$x = \frac{200}{4}$

$x = 50$

$A = LW$

$= 50(40)$

$= 2000 \text{ ft}^2$

A rectangle has perimeter of 306 in.

The length is 1 in. longer than 3 times its width.

find the measure of its length.

A) 38

B) 38in.

c) 115

D) 115 in.

Length $\rightarrow 3x + 1$

width $\rightarrow x$

$3(38) + 1$

$= 114 + 1$

$= 115$

$P = 306$

$2L + 2W = 306$

$2(3x+1) + 2x = 306$

$6x + 2 + 2x = 306$

$8x + 2 = 306$

$8x = 306 - 2$

$8x = 304$

$x = \frac{304}{8}$

$x = 38$