Math 107

Spring 2017

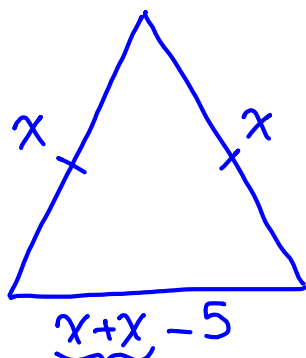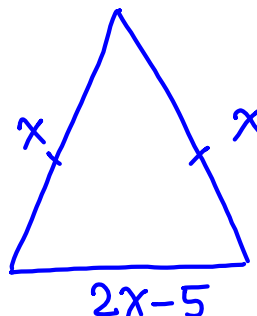**Lecture 6**

Translate only:

twice some number increased by 10 is equal to square of the number less −10.
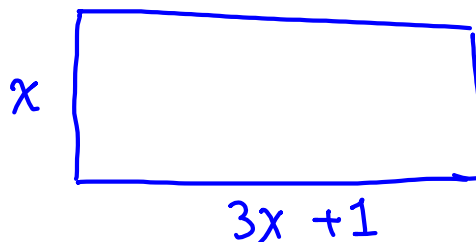
Let x be the number

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

$$2x + 10 = x^2 + 10$$

Draw & label a triangle with two equal sides and third side is 5 cm shorter than the sum of equal sides.

x x $\Rightarrow$ x x

$\underbrace{x + x}\, - 5$ $2x - 5$

Draw a label a rectangle such that its length is <u>1 ft longer</u> than ⟨3 times⟩ its <u>width.</u>

x [rectangle]

$3x + 1$

What percent **of 80** **is 120?**

$\dfrac{P}{100} \cdot 80 = 120$ $\dfrac{P}{100} = \dfrac{\text{Part}}{\text{whole}}$

$\dfrac{\cancel{80}}{\cancel{100}}\, P = 120$ $\dfrac{P}{100} = \dfrac{120}{80}$

$\dfrac{8}{10}\, P = 120$ $80p = 100(120)$

$.8\, P = 120$ $P = \dfrac{100(120)}{80}$ $\boxed{P = 150}$

$P = \dfrac{120}{.8}$ 150% of 80 is 120.

$P = 150$

Among 400 Voters in LA, 175 voted for Mr. Trump. Use this ratio to find how many people voted for Mr. Trump from a population 25000.

$$\frac{400 \text{ Voters}}{175 \text{ Trump}} = \frac{25000 \text{ Voters}}{X \text{ Trump}}$$

$X = 10937.5$

About 10938

$$\frac{400}{175} = \frac{25000}{X}$$

$$400 X = 175(25000)$$

$$X = \frac{175(25000)}{400}$$

In a math class, there were 48 students. The number of female students was 3 times the number of male students. How many of each group?

Total : 48

Parts

Males → X

Females → $3X$

Males + Females = Total

X + $3X$ = 48

$4X = 48$ $\boxed{X = 12}$

12 Males & 36 Females

John purched a total of 52 notebooks. the number of large notebooks was 1 more than twice the # of small notebooks. How many of each?

Total = 52

Parts   Small = x

Large = $2x + 1$

Small + Large = Total

$x + 2x + 1 = 52$

$3x + 1 = 52$

$3x = 52 - 1$

$3x = 51$

$x = \frac{51}{3}$

$x = 17$

17 Small
&
35 Large

Distributive Prop:

$a(b + c) = ab + ac$

$3(x + 7) = 3x + 21$

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

$= 4x - 6$

Simplify

$3(2x + 4) + 2(x - 1) = 6x + 12 + 2x - 2$

$= 8x + 10$

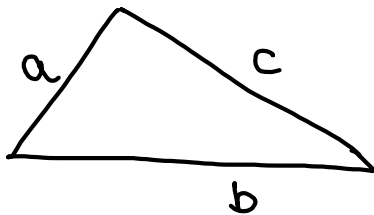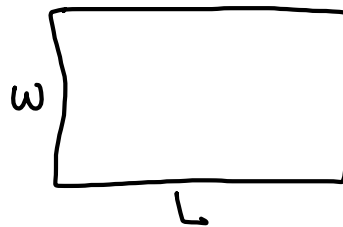Simplify

$$4(x-2) + 2(x+3) + 2$$

$$= 4x \; \cancel{-8} \; +2x \; \cancel{+6} \; \cancel{+2}$$

$$= \boxed{6x}$$

Geometric Perimeter:

a, c, b (triangle)

$$P = a + b + c$$

w, L (rectangle)
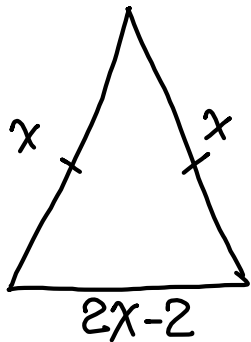
$$P = 2L + 2W$$

Perimeter of a triangle is 22 ft. Two sides are equal. Third side is 2 ft shorter than the sum of equal sides. Find all three sides.

x x

$2x-2$

$P = 22$

$a + b + c = 22$

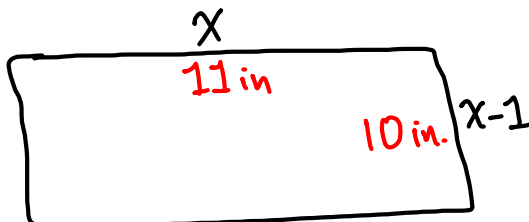$\boxed{x} + \boxed{2x-2} + \boxed{x} = 22$

$4x - 2 = 22$

$4x = 22 + 2$

$4x = 24 \Rightarrow x = \dfrac{24}{4}$

$\boxed{x = 6}$

6ft, 6ft, and 10 ft.

The perimeter of a rectangle is 42in. Its width is 1 in shorter than its length. find its dimensions.

x

11 in

10 in. $x-1$

$P = 42$ in.

$2L + 2W = 42$

$2x + 2(x-1) = 42$

$\underbrace{2x + 2x - 2 = 42}$

$4x - 2 = 42$

$4x = 42 + 2$

$4x = 44$

$x = \dfrac{44}{4}$
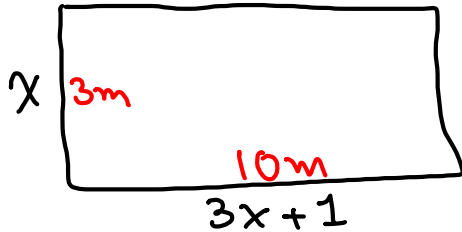
$x = 11$

11 in by 10 in.

The length of a rectangle is 1m longer than 3 times its width. The perimeter is 26m. find its area.

$$P = 26m$$

$$2L + 2W = 26$$

$$2(3x+1) + 2x = 26$$

x | 3m

10m

3x+1

$$6x + 2 + 2x = 26$$

$$8x + 2 = 26$$

$$x = \frac{24}{8}$$

$$8x = 26 - 2$$

$$\boxed{x = 3}$$

$$8x = 24$$

Area is 30 m²

NO class →Next week →Spring break

Work on ch. 5

Geometric Perimeter