Math 107

Fall 2016

Lecture 7

Translate only:

Twice the square of some number

is equal to 5 less than 3 times the number.

Let x be the number

$$2x^2 = 3x - 5$$

Ch. 1

3.25% of what number is 2600?

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

$$\frac{3.25}{100} = \frac{2600}{x}$$

Cross-Multiply

$$3.25x = 100(2600)$$

$$3.25x = 260000$$

$$x = \frac{260000}{3.25} \qquad \boxed{x = 80,000}$$

3.25% of 80,000 is 2600   Ch.2

There are 40 Computers for 75 Students. At this rate, how many computers for 4500 Students?

$$\frac{40 \ Comp.}{75 \ Students} = \frac{x \ Comp.}{4500 \ Students}$$

$$\frac{40}{75} = \frac{x}{4500}$$

Cross-Multiply

$$75x = 40(4500)$$

$$x = \frac{40(4500)}{75}$$

$$x = 2400$$

2400 Computers

Ch.3

Maria bought 64 books.

Math & English only.

The number of Math books were 1 more than

6 times the number of English books.

How many math books did she buy?

Math → $6x + 1$ ⇒ $6(9) + 1$
English → x
$= 54 + 1$
$= 55$

$x = \frac{63}{7}$

55 Math Books

$x = 9$

Ch. 4

Total = 64

Math + English = 64

$6x + 1 + x = 64$

$7x + 1 = 64$
$7x = 64 - 1$
$7x = 63$

Jack has 35 Coins.

Nickels, Dimes, and Quarters.

the number of dimes is 4 times the number of Quarters.

The number of nickels is 1 fewer than 7 times the number of quarters.

How many of each?

Total is 35

Type	Quantity	
Dimes	$4x$	12
Nickels	$7x - 1$	20
Quarters	x	3

Dimes + Nickels + Quarters = 35
$4x$ + $7x - 1$ + x = 35

$12x - 1 = 35$
$12x = 35 + 1$
$12x = 36$
$x = 3$
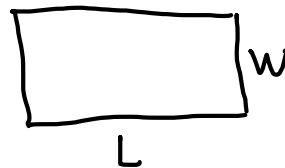
12 Dimes,
20 Nickels,
and 3 Quarters
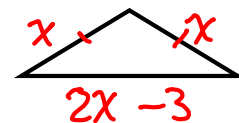
ch.4

Ch.5 : Geometric perimeters

Triangle
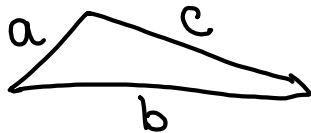
$P = a + b + c$

Rectangle

$P = 2L + 2W$

Two sides of a triangle are equal.
Third side is 3 inches shorter than the
sum of equal sides. Draw & label
such triangle

$x \quad x$
$2x - 3$

A triangular garden has a perimeter of 20 ft. One side is 6 ft. the other two sides are equal. find the missing sides.
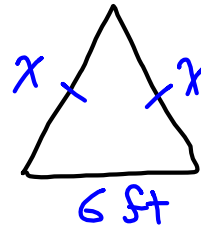
$$P = 20$$
$$a + b + c = 20$$
$$x + 6 + x = 20$$
$$2x + 6 = 20$$
$$2x = 20 - 6$$
$$2x = 14$$
$$x = \frac{14}{2} \quad \boxed{x = 7}$$

x $\quad$ x

6 ft

7 ft each

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the perimeter of a triangle is 33 m. One side is twice another side. Third side is 3m shorter than the sum of other two sides. find all three sides.

$$P = 33$$

Side 1 + Side 2 + Side 3 = 33

$$x + 2x + 3x - 3 = 33$$
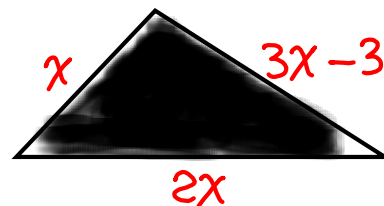
x $\quad$ $3x - 3$

$2x$

$$6x - 3 = 33$$
$$6x = 33 + 3$$
$$6x = 36$$
$$x = \frac{36}{6}$$
$$\boxed{x = 6}$$

6 m, 12 m, and 15 m.

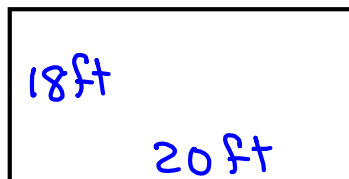the length of a rectangular carpet is
2 ft longer than its width.
Perimeter is 76ft.   → 18ft by 20 ft
find its dimensions.   W=X [18ft
                                  20ft]
            P = 76
            2L + 2W = 76   L = X + 2
            2(x+2) + 2(x) = 76
            2x + 4 + 2x = 76   → 4x = 72
            4x + 4 = 76   x = $\frac{72}{4}$
            4x = 76 - 4   X = 18

A rectangular pool has a perimeter of
44 meters.
The length is 1 m longer than twice the width.
Find the length
            P = 44   [Ball]   A) 7
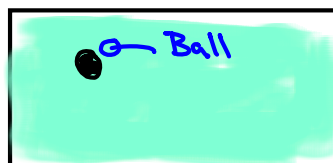   2L + 2W = 44   W=X   B) 7m
            2(2x+1) + 2x = 44   L = 2X + 1   C) 15
            4x + 2 + 2x = 44   L = 2(7)+1   D) 15m
            6x + 2 = 44   → X = $\frac{42}{6}$ L = 15
            6x = 42   X = 7