Math 107
Spring 2017
Lecture 11

Tom has \$2.50 in nickels and dimes. The # of dimes is 5 fewer than the # of nickels. How many of each?

Coins	worth	Number	Value
Dimes	10¢	$x-5$	$10(x-5)$
Nickels	5¢	x	$5x$

Total Value is \$2.50

Dimes + Nickels = 250¢

$10(x-5)+5x = 250$

$10x-50+5x=250$

$15x=300$

$x=\frac{300}{15}$ $x=20$

20 Nickels

&

15 Dimes

Jack sold 30 drinks.

He collected $88.

Small drink $2.50

Large drink $3.50

How many of each?

Large	Small
30-1=29	1
30-2=28	2
30-10=20	10

Type	Worth	Number	Value
Small	$2.50	x	$2.50x$
Large	$3.50	$30-x$	$3.50(30-x)$

$2.50x+3.50(30-x)=88$

Multiply by 100 to remove decimal Point.

$250x+350(30-x)=8800$

Divide by 10 to reduce

$25x+35(30-x)=880$

Divide by 5 to reduce

$5x+7(30-x)=176$

$5x+210-7x=176$

$-2x+210=176$

$-2x=176-210$

$-2x=-34$

$x=\frac{-34}{-2}$ $x=17$

17 Small

&

13 Large drinks

$30-17=13$

Maria Paid $4.20 to buy two different type of Stamps.

one @ 15¢ each, another @ 20¢ each.

The # of 20¢ Stamp was 1 fewer than twice the number of 15¢ Stamp.

How many of each?

Stamp	Worth	Number	Value
15¢	15	x	$15x$
20¢	20	$2x-1$ ($2(8)-1$)	$20(2x-1)$

$15x + 20(2x-1) = 420$

$15x + 40x - 20 = 420$

$55x = 440$

$x = 8$

8 of 15¢ Stamp & 15 of 20¢ stamp.

John drove half hr in construction zone and two and a half hrs on the FWY.

Total distance 157.5 miles.

His speed on the freeway was 4 times his speed in construction zone.

Find his speed in both parts.

$x = 15$

15 mph Const.

60 mph FWY

Type	r	$\cdot\ t$	$= d$
Const.	x	.5	$= .5x$
FWY	$4x$	2.5	$= 2.5(4x)$

$.5x + 2.5(4x) = 157.5$

$.5x + 10x = 157.5$

$10.5x = 157.5$

$x = \frac{157.5}{10.5}$

Jose & Maria hit the road.

Jose drove 3 hrs, Maria drove 4 hrs.

Total distance 445 miles.

Maria's speed was 15 mph faser than Jose's.

Find speed for both.

Driver	r	t	d
Maria	$x+15$	4	$4(x+15)$
Jose	x	3	$3x$

$3x + 4(x+15) = 445$

$3x + 4x + 60 = 445$

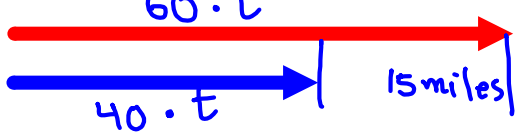
$7x = 385$

$x = \frac{385}{7}$ $x = 55$

Jose: 55 mph

Maria: 70 mph

Maria & Jose are traveling in the same direction. They left the rest area at the same time. How long does it before Jose is 15 miles ahead of Maria? Jose @ 60 mph, and Maria @ 40 mph.



$\underbrace{60t}_{\text{Distance by Jose}} - \underbrace{40t}_{\text{Distance by Maria}} = 15 \text{ miles}$

$20t = 15$

$t = \frac{15}{20}$

$t = .75$ hr

45 minutes

Next week : Simple Interest

- our last class
- Any work you have not turned in, Do it.
- Instruction for Simple interest will be Given next week.