

# Math 107

## Fall 2016

### Lecture 12

find two consecutive odd integers such that the sum of smaller one and twice the larger one is 55.

$x$    &    $x+2$   
 $\uparrow$       $\uparrow$   
 Smaller   Larger

17 & 19

$$\text{Smaller} + 2 \text{ larger} = 55$$

$$x + 2(x+2) = 55$$

$$x + 2x + 4 = 55$$

$$3x + 4 = 55$$

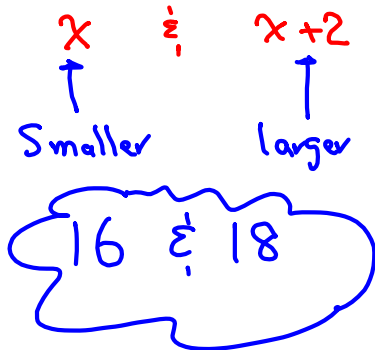
$$3x = 55 - 4$$

$$3x = 51$$

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

$$\boxed{x = 17}$$

Find two consecutive even integers such that when 3 times the smaller one is reduced by twice the larger one, the result is 12.



$$3 \cdot \text{Smaller} - 2 \cdot \text{larger} = 12$$

$$3x - 2(x+2) = 12$$

$$3x - 2x - 4 = 12$$

$$x - 4 = 12$$

$$x = 12 + 4$$

$$\boxed{x = 16}$$

Lisa has 85¢ in nickels & dimes only.

The number of nickels is 1 more than twice the number of dimes.

How many of each?

Type	Worth	How many?	Value
Nickels	5¢	$2x+1$	$5(2x+1)$
Dimes	10¢	$x$	$10x$

$$\text{Total Value} = 85¢$$

$$5(2x+1) + 10x = 85$$

$$10x + 5 + 10x = 85$$

$$20x + 5 = 85$$

$$\rightarrow 20x = 85 - 5$$

$$20x = 80$$

$$\boxed{x = 4}$$

4 Dimes & 9 Nickels

School paid \$77 for tkts to take some kids and some parents to the zoo.

Kid's tkt  $\rightarrow \$4$ , Adults' tkt  $\rightarrow \$7$

The number of kids was 1 fewer than 5 times the number of adults.

How many of each?

$$4(5x-1) + 7x = 77$$

$$20x - 4 + 7x = 77$$

$$27x - 4 = 77$$

$$27x = 77 + 4$$

$$27x = 81$$

$$x = \frac{81}{27}$$

$$x = 3$$

Type	Worth	How many?	Value
Kids	\$4	$5x-1$	$4(5x-1)$
Adults	\$7	$x$	$7x$

3 Adults  
&  
14 Kids

Mr. Flores Paid \$7.25 to buy some HB & some FF.

HB  $\rightarrow \$1.25$ , FF  $\rightarrow \$0.75$

He ordered 7 items in total. Find how many of each?

HB    FF  
1    7-1  
2    7-2  
 $x$     7- $x$

Type	Worth	How many?	Value
HB	1.25	$x$	$1.25x$
FF	.75	$7-x$	$.75(7-x)$

$$1.25x + .75(7-x) = 7.25$$

$$125x + 75(7-x) = 725$$

$$\underline{125x} + \underline{525} - \underline{75x} = 725$$

$$50x + 525 = 725$$

$$50x = 725 - 525$$

$$50x = 200$$

$$x = 4$$

4 HB & 3 FF

Jose has \$1.95 in nickels & Quarters only.

He has a total of 15 Coins.

How many of each?

Nickels	Quarters
1	15-1
3	15-3
7	15-7
$x$	15- $x$

Type	Worth	How many	Value
Nickels	5	$x$	$5x$
Quarters	25	$15-x$	$25(15-x)$

$$5x + 25(15-x) = 195$$

9 Nickels  
&  
6 Quarters

$$x = \frac{-180}{-20}$$

$$x = 9$$

$$5x + 375 - 25x = 195$$

$$-20x + 375 = 195$$

$$-20x = 195 - 375$$

$$-20x = -180$$

Jose has \$1.95 in nickels & Quarters only.

He has a total of 15 Coins.

How many of each?

$$25x + 5(15-x) = 195$$

$$25x + 75 - 5x = 195$$

$$20x + 75 = 195$$

$$20x = 195 - 75$$

$$20x = 120$$

$$x = 6$$

Type	Worth	How many	Value
Nickels	5	$15-x$	$5(15-x)$
Quarters	25	$x$	$25x$

6 Quarters  
&  
9 Nickels

what is ahead?

Turn in any work.

Mixture

