

Math 1

• Test (Final)
- June 5th AM

★ Test Correction &
test makeup
due June 2nd
★ Friday! ★

1st Period → Martin Rm

4th Period → Fender Rm

★ take out stuff
from yesterday ★

Bring laptops
tomorrow &
Friday!

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Rearranging Equations Review

$$3x - 4y = 16$$

Highlight the variable you are solving for

Use the distributive property, if necessary, to get rid of any parentheses

Use addition or subtraction to move entire terms to the other side of the equal sign

Use multiplication or division to get rid of the coefficient in front of the variable you are solving for

$$\begin{array}{r}
 \cancel{3x} - 4y = 16 \\
 \hline
 -4y = 16 - \cancel{3x} \\
 \hline
 \frac{-4y}{-4} = \frac{16}{-4} - \frac{3x}{-4} \\
 \hline
 y = -4 + \frac{3}{4}x
 \end{array}$$

solve each equation for y.

$$\begin{array}{r}
 y - 3 = 4(x - 2) \\
 \boxed{y} - 3 = 4x - 8 \\
 \hline
 \boxed{y} = 4x - 5
 \end{array}$$

$$\begin{array}{r}
 15x - 12\boxed{y} = 30 \\
 \hline
 -15x \quad -15x \\
 \hline
 -12\boxed{y} = 30 - 15x \\
 \hline
 \boxed{y} = \frac{-5}{2} + \frac{5}{4}x
 \end{array}$$

$$\begin{array}{r}
 -5x - \boxed{y} = 11 \\
 \hline
 +5x \quad +5x \\
 \hline
 -\boxed{y} = 11 + 5x \\
 \hline
 \boxed{y} = -11 - 5x
 \end{array}$$

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$$y + 2 = -8(x - 1)$$

$$\boxed{y + 2} = \frac{-8x + 8}{-2}$$

$$\boxed{y = -8x + 6}$$

$$3x + 2y = 12$$

$$\frac{-3x}{-3x} \quad \frac{2y}{-3x} = \frac{12}{-3x}$$

$$\frac{2y}{2} = \frac{12 - 3x}{2}$$

$$y = 6 - \frac{3}{2}x$$

$$4x - 2y = -16$$

$$\frac{-4x}{-4x} \quad \frac{-2y}{-4x} = \frac{-16 - 4x}{-4x}$$

$$\frac{-2y}{-2} = \frac{-16 - 4x}{-2}$$

$$\boxed{y = 8 + 2x}$$

Writing Systems $\$ + \$ = \$$

$$\# + \# = \#$$

Hanna had \$11.20 in a jar that contains only nickels and dimes. There are 140 coins in the jar.

Equation or Inequality? Equation

Let Statements

$n = \#$ of nickels

$d = \#$ of dimes

System

$$.05n + .10d = 11.20$$

$$n + d = 140$$

A total of 243 adults and children are at a movie theater. There are 109 more adults than children in the theater.

Equation or Inequality? equation

Let Statements

$A = \#$ of Adults

$C = \#$ of Children

System

$$A + C = 243$$

$$C = A - 109$$

$$A = C + 109$$

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You can work at most 20 hours next week. You need to earn at least \$92 to cover your weekly expenses. Your dog walking job pays \$7.50 per hour, and your job as a car attendant pays \$6 per hour.

Equation or inequality? *inequality*

Let Statements

d = hrs of dog walking

c = hrs of car attendant

System

$$d + c \leq 20$$

$$7.50d + 6c \geq 92$$

Jonah is going to the store to buy candles. Small candles cost \$3.50 and large candles cost \$5.00. He needs to buy at least 20 candles, and he cannot spend more than \$80.

Equation or inequality? *inequality*

Let Statements

S = small candles

L = large candles

System

$$S + L \geq 20$$

$$3.50S + 5L \leq 80$$

Tamika would like to go fishing at one of two catfish farms close to her home. Floyd's Catfish Farm charges a \$5 fee to fish plus \$2 per pound of fish caught. The Murrer Catfish Farm does not charge a fee to fish, but charges \$3 per pound of fish caught.

Equation or inequality? *Equation*

Let Statements

C = Cost

P = Pound

System

$$C = 2P + 5$$

$$C = 3P$$

Henry wants to buy up to 10 comic books and has \$50 to spend. An action comic book costs \$2.50 and a mystery comic book costs \$2.75. He buys some of each type.

Equation or inequality? *Inequality*

Let Statements

A = # of Action

M = # of Mystery

System

$$A + M \leq 10$$

$$2.50A + 2.75M \leq 50$$

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Story Problem	
Hanna has \$11.20 in a jar that contains only nickels and dimes. There are 140 coins in the jar. How many of each coin does Hanna have?	
Let Statements	System
Let n = number of nickels	$n + d = 140$
Let d = number of dimes	$0.05n + 0.10d = 11.20$
Solve for a single variable.	Substitute and Solve.
$\begin{array}{r} n + d = 140 \\ -d \quad -d \\ \hline n = 140 - d \end{array}$ $.05n + .10d = 11.20$	$.05(140 - d) + .10d = 11.20$ $7 - .05d + .10d = 11.20$ $7 + .05d = 11.20$ $\begin{array}{r} 7 + .05d = 11.20 \\ -7 \quad -7 \\ \hline .05d = 4.20 \\ \frac{.05d}{.05} = \frac{4.20}{.05} \\ d = 84 \end{array}$
Plug back in to find the other variable.	Write the solution.
$n = 140 - d$ $n = 140 - 84$ $n = 56$	$d = 84$ $n = 56$

Story Problem	
A total of 243 adults and children are at a movie theater. There are 109 more adults than children in the theater. How many adults are there? How many children are there?	
Let Statements	System
Let a = number of adults	$a + c = 243$
Let c = number of children	$c + 109 = a$
Solve for a single variable.	Substitute and Solve.
$a = 109 + c$ $a + c = 243$	$(109 + c) + c = 243$ $109 + c + c = 243$ $2c + 109 = 243$ $\begin{array}{r} 2c + 109 = 243 \\ -109 \quad -109 \\ \hline 2c = 134 \\ \frac{2c}{2} = \frac{134}{2} \\ c = 67 \end{array}$
Plug back in to find the other variable.	Write the solution.
$a = 109 + c$ $a = 109 + 67$ $a = 176$	$a = 176$ $c = 67$

Story Problem	
Tamika would like to go fishing at one of two catfish farms close to her home. Floyd's Catfish Farm charges a \$5 fee to fish plus \$2 per pound of fish caught. The Miller's Catfish Farm does not charge a fee to fish, but charges \$3 per pound of fish caught. When is the charge the same?	
Let Statements	System
Let p = pounds of fish	$t = 5 + 2p$
Let t = total cost	$t = 3p$
Solve for a single variable.	Substitute and Solve.
$t = 5 + 2p$ $t = 3p$	$(5 + 2p) = 3p$ $5 + 2p = 3p$ $\quad -2p \quad -2p$ $\hline 5 = p$
Plug back in to find the other variable.	Write the solution.
$t = 3p$ $t = 3(5)$ $t = 15$	$p = 5$ $t = 15$

Story Problem	
Ben is 12 years older than Emily. The sum of their ages is 64. How old is Ben? How old is Emily?	
Let Statements	System
Let b = Ben's age	$B = E + 12$
Let e = Emily's age	$B + E = 64$
Solve for a single variable.	Substitute and Solve.
$B = E + 12$ $B + E = 64$	$(E + 12) + E = 64$ $E + 12 + E = 64$ $2E + 12 = 64$ $\quad -12 \quad -12$ $\hline 2E = 52$ $\frac{2E}{2} = \frac{52}{2}$ $E = 26$
Plug back in to find the other variable.	Write the solution.
$B = E + 12$ $B = 26 + 12$ $B = 38$	$E = 26$ $B = 38$

Story Problem	
The sum of two numbers is -22. The difference of the two numbers is 8. What are the two numbers?	
Let Statements	System
$x = 1^{st} \#$ $y = 2^{nd} \#$	$x + y = -22$ $x - y = 8$
Rewrite the system so like terms are aligned.	Determine which variable you will eliminate.
	y
Multiply, if necessary, to make elimination possible.	Combine the equations and solve for the other variable.
	$x + y = -22$ $+ x - y = 8$ <hr/> $2x = -14$ $\frac{2x}{2} = \frac{-14}{2}$ $x = -7$
Substitute to solve for the eliminated variable.	Write the solution.
$x + y = -22$ $-7 + y = -22$ $+7 \quad +7$ $\hline y = -15$	$x = -7$ $y = -15$

Story Problem	
At a movie theater, the adult ticket price is \$8 and the child ticket price is \$5. For a certain movie, 200 tickets were sold and \$1440 was collected. How many of each ticket were sold?	
Let Statements	System
$A = \# \text{ of Adults}$ $C = \# \text{ of children}$	$8A + 5C = 1440$ $A + C = 200$
Rewrite the system so like terms are aligned.	Determine which variable you will eliminate.
	C
Multiply, if necessary, to make elimination possible.	Combine the equations and solve for the other variable.
$-6(A + C = 200)$ $\star -6A - 6C = -1200$ $\star 8A + 5C = 1440$	$-6A - 6C = -1200$ $+ 8A + 5C = 1440$ <hr/> $2A = 240$ $\frac{2A}{2} = \frac{240}{2}$ $A = 120$
Substitute to solve for the eliminated variable.	Write the solution.
$A + C = 200$ $120 + C = 200$ $\hline C = 80$	$A = 120$ $C = 80$

Story Problem	
One week, Sharon worked 18 hours as a lifeguard and 12 hours at a concession stand and earned \$228. The next week, she earned \$254 for 24 hours as a lifeguard and 8 hours at the concession stand. How much per hour does she get paid for each job?	
Let Statements	System
Rewrite the system so like terms are aligned.	Determine which variable you will eliminate.
Multiply, if necessary, to make elimination possible.	Combine the equations and solve for the other variable.
Substitute to solve for the eliminated variable.	Write the solution.

Story Problem	
There are 156 laptops and desktop computers in a lab. There are 8 more laptops than desktop computers. How many of each type are in the lab?	
Let Statements	System
Rewrite the system so like terms are aligned.	Determine which variable you will eliminate.
Multiply, if necessary, to make elimination possible.	Combine the equations and solve for the other variable.
Substitute to solve for the eliminated variable.	Write the solution.

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