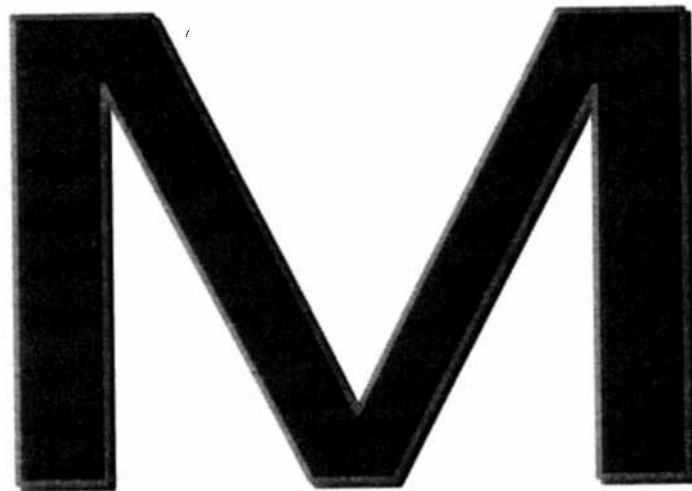


Brien McMahon High School

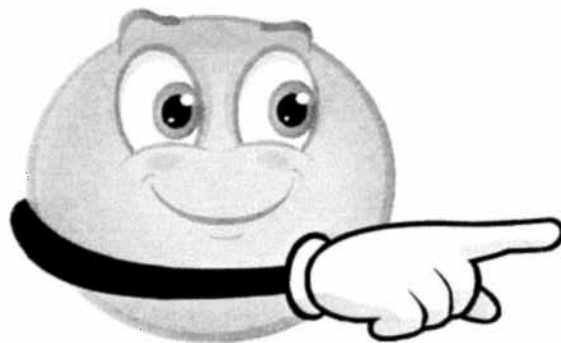
Summer Review

INTERMEDIATE ALGEBRA



This packet is designed for you to review your Algebra 1 skills and make sure you are well prepared for the start of your Intermediate Algebra school year.

**\*\*This packet is due the SECOND DAY of school & will be counted as a QUIZ grade for the first quarter!!**



# I: Real Numbers and their Properties

- 1) Complete the chart by placing a check in all the boxes that apply to the number in the left hand column.

	Natural Number {1,2,3,...}	Whole Number {0,1,2,...}	Integer {-2,-1,0,1,2...}	Rational Number {ex. -3, -2/3, .333, & .75}	Irrational Number {ex. $\sqrt{3}$ & $\pi$ }	Real Number {All rational & irrational #s}
$-\frac{4}{7}$	✓	✓	✓	✓		✓
-7						
3						
$\sqrt{2}$						
$\frac{3}{5}$						
0.78						
$\frac{5}{4}$						

- 2) Identify the property shown in each of the following examples.

a)  $3 \bullet 5 = 5 \bullet 3$

i) Additive Inverse

b)  $-3(1) = -3$

ii) Commutative

c)  $7(2 \bullet 5) = (7 \bullet 2)5$

iii) Distributive

d)  $3 + -3 = 0$

iv) Multiplicative Identity

e)  $3(2 + 5) = 3 \bullet 2 + 3 \bullet 5$

v) Multiplicative Inverse

f)  $\frac{1}{2} \bullet 2 = 1$

vi) Associative

## II: Order of Operations

“Please Excuse My Dear Aunt Sally”

Parentheses, Exponents, Multiplication, Division,  
Addition, Subtraction

3) Simplify each expression.

a)  $2 + 6 \cdot 8 \div 4 =$

b)  $10 \div 5 \cdot 2 + 6 =$

c)  $-3(8^2 + 6) =$

d)  $5x^2(2x - 4) =$

e)  $\frac{6(4+6)}{20-3 \cdot 5} =$

f)  $(4x+5) + (2x+7) =$

g)  $\frac{2.5(8.46+6.2)}{5.2-3.2} =$

h)  $5 - [2 - (-4 \cdot 6 - 2^2)] =$

i)  $(5y^3 - 2y^2 + 6) - (3y^2 + 4y - 6) =$

j)  $\frac{2}{3} + \frac{6}{5} =$

k)  $\frac{3}{4} \cdot \frac{5}{8} =$

l)  $\frac{1}{2} \div 2 =$

m)  $3(8+3)^2 =$

4) Evaluate each expression when  $x = 3$ ,  $y = 1$  and  $z = 2$ . *\*Hint: Replace the letter with the number to which it is equal.*

a)  $(xz)^2 - (xy)^z =$

b)  $\frac{y}{z+3y} =$

c)  $12 - (z - y)^2 =$

d)  $3 + [(13 - x) \cdot z] =$

### III: Decimals, Percents and Fractions

5) Write each number as a Decimal, Percent and Fraction.

Number	Decimal	Percent	Fraction
Example 0.33	.33	.33 x 100 = 33%	$\frac{33}{100}$
1.25			
0.05			
$\frac{3}{8}$			
$\frac{7}{20}$			
$\frac{5}{4}$			
65%			
12.5%			
345%			

## IV: Solving Linear Equations

6) Solve the following equations. Show all of your Work!

a)  $x + 7 = 4$

b)  $x - 7 = 9$

c)  $3x = 12$

d)  $\frac{x}{5} = 4$

e)  $3n - 2 = 11$

f)  $2n + 5 = 11$

g)  $2n + 6 = 7n - 9$

h)  $4y - 5 - y = 10$

i)  $2(a + 6) = 28$

j)  $\frac{a}{4} + 6 = 8$

## V: Plotting Points on the Coordinate Plane

7. Label the  $x$ -axis and the  $y$ -axis. Plot the following points on the graph provided. Be sure to identify each point with its appropriate letter.

B (2, 4)

C (3, -2)

D (-1, 3)

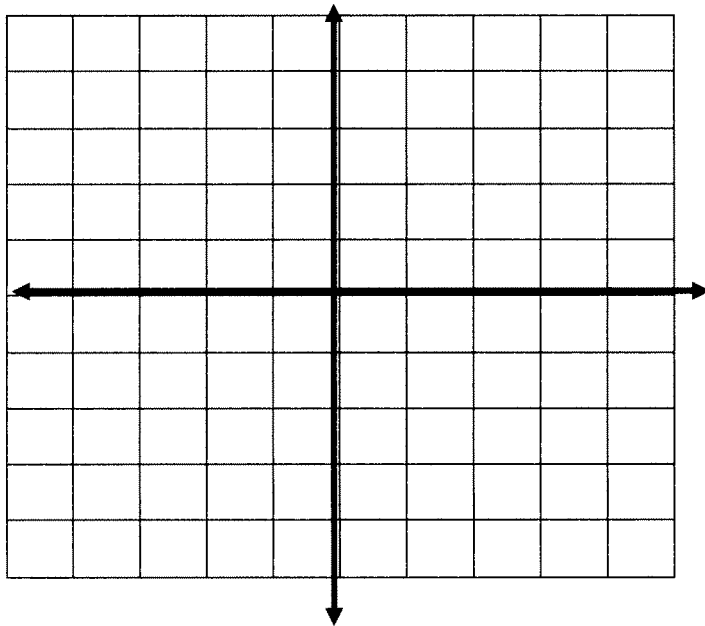
E (-3, -1)

F (1, 5)

G (4, -3)

H (-2, 1)

J (-4, -5)



## VI: Using Slope and Y-Intercept to Graph Linear Equations and to Write Equations of Lines

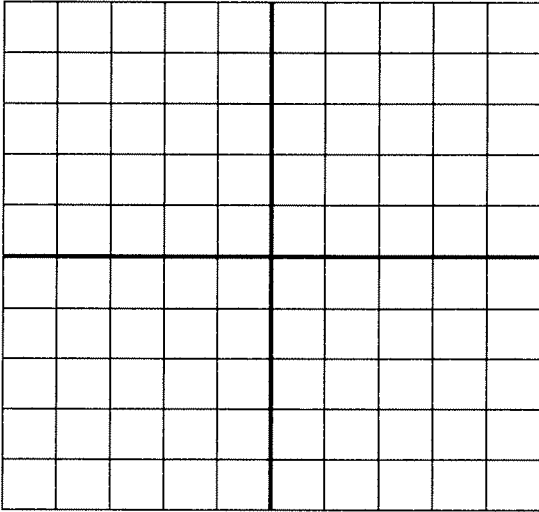
**Slope -intercept form:**  $y = mx \pm b$

$m = \text{slope} = \frac{\text{rise}}{\text{run}}$

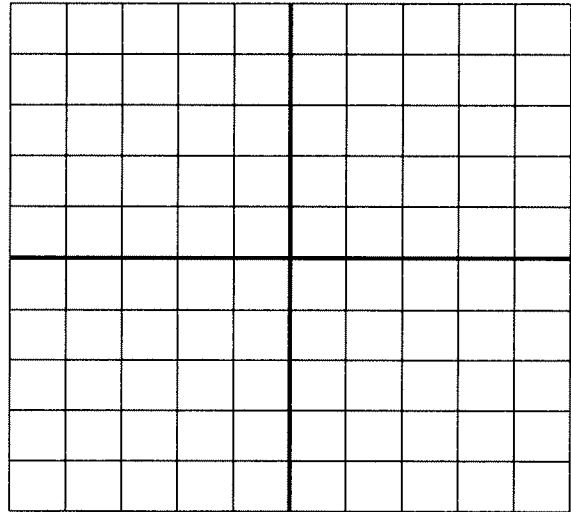
$b = \text{y-intercept}$

9. Graph each of the lines on the coordinate grids below.

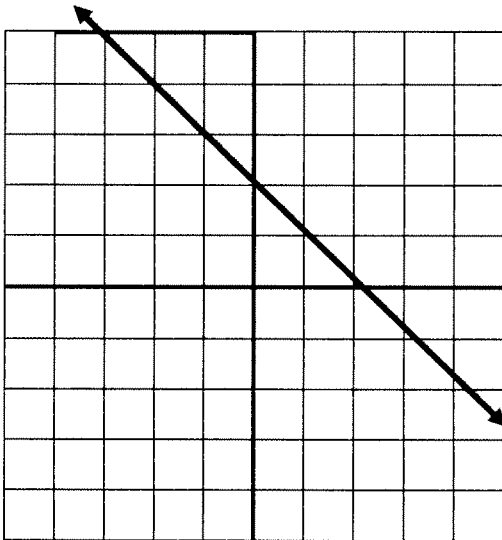
$$y = 2x - 1$$



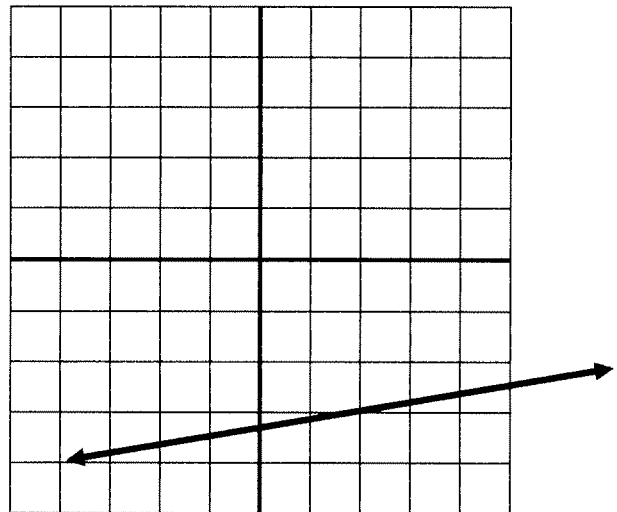
$$y = \frac{-1}{3}x + 4$$



10. Find the slope and  $y$ -intercept of each line. Write the equation of the line.



Slope = \_\_\_\_\_  
 $y$ -intercept = \_\_\_\_\_  
 equation: \_\_\_\_\_



Slope = \_\_\_\_\_  
 $y$ -intercept = \_\_\_\_\_  
 equation: \_\_\_\_\_

## VII: Applications

**Solve the following problems. Be sure to show all your work, label and circle your answer.**

11) 18% of hospital patients stay for less than 1 day. If 1,008 patients in January stayed for less than 1 day, what is the total number of patients that the hospital treated in January?

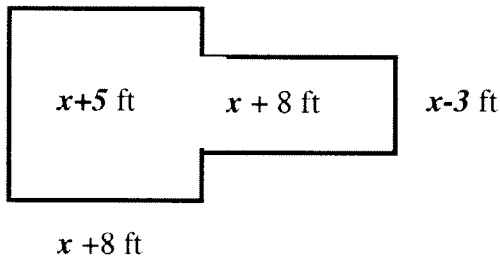
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12) Employees at an appliance store can purchase merchandise at 25% less than the regular price. An employee buys a color TV set for \$414.72 including an 8% sales tax. What is the regular price of the TV?

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13) What will it cost to carpet the area (shown in the illustration below) with carpet that costs \$29.79 per square yard, including the 6% sales tax, if the perimeter is 80 ft?

(Hint: 1 square yard is equal to 9 square feet)



What is the value of  $x$ ? \_\_\_\_\_

What is the area of the larger rectangle? \_\_\_\_\_

What is the area of the smaller rectangle? \_\_\_\_\_

What is the total area? \_\_\_\_\_

The area is equal to how many square yards? \_\_\_\_\_

What is the cost of the carpet? \_\_\_\_\_

What is the tax on the carpet? \_\_\_\_\_

What is the total cost of the carpet? \_\_\_\_\_