Welcome to Applied Algebra 1B

Summer assignment:

You must complete all the noted problems. *Make sure answers are circled, neat, and easily readable.*

Make sure that you read and follow all the instructions!!

Make sure you use pencil-USE PEN & LOSE 10!!!

Your summer assignment will count for 5 homework grades and will be collected on the first day of class.

Within the first week of school there will be a test on the summer assignment material. It is your responsibility to come to school on the first day with the questions that you could not work out on your own.
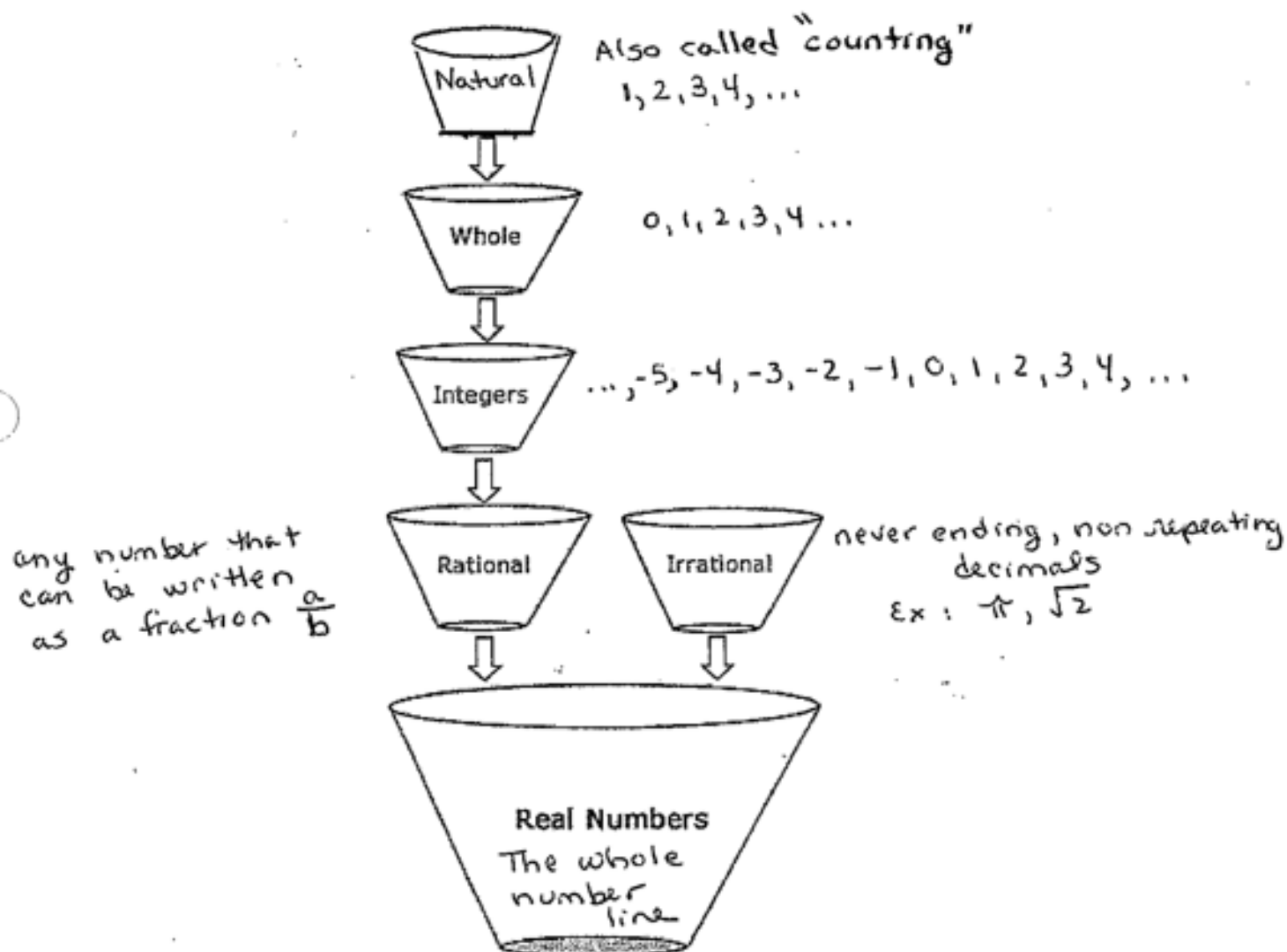
For the first day of class:

Have your summer assignment in order, stapled and ready to turn in.

Have an algebra 1 three ring binder ready with dividers, white lined paper and graph paper.

Bring your graphing calculator. We recommend the TI-84 or TI-84plus.

Bring your pencils and a ruler. You also must have an eraser!!

Sets of Numbers

Natural — Also called "counting"
1, 2, 3, 4, ...

Whole — 0, 1, 2, 3, 4 ...

Integers — ..., -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, ...

Rational — any number that can be written as a fraction $\frac{a}{b}$

Irrational — never ending, non repeating decimals
Ex: π, $\sqrt{2}$

Real Numbers
The whole number line

Classify each real number into the appropriate SETS. Refer to the diagram on page 2: Natural, Whole, Integer, Rational, Irrational, Real. They may belong in more than 1!!!!!!

    1) −15   2) 11

3) $\sqrt{30}$ 4) $\dfrac{17}{3}$

5) 6   6) 0

7) −13   8) 3

Do each calculation without a calculator and check your answers with a calculator. Remember, if there are no parentheses, you must do multiplication or division before addition or subtraction. (· = multiply)

1.) $9 - 4 \cdot 2 + 3$ 2.) $9 - 4 + 12 \cdot 3$ 3.) $-3 \cdot 6 + 4 \cdot -5$

4.) $-18 + -6 \cdot -2 + 5$ 5.) $2 \cdot (9 - 18) - (-10)$ 6.) $-(5 - 9) \cdot -3 \cdot 6$

Find the sum or difference of these fractions without a calculator then reduce to simplest form. (Improper fractions are OK)

1. $\dfrac{1}{2} + \dfrac{2}{3} =$ _____

2. $\dfrac{8}{12} + \dfrac{8}{11} =$ _____

3. $\dfrac{2}{7} + \dfrac{6}{10} =$ _____

4. $\dfrac{1}{6} + \dfrac{6}{11} =$ _____

1. $\dfrac{5}{7} - \dfrac{2}{3} =$ _____

2. $\dfrac{2}{3} - \dfrac{3}{8} =$ _____

3. $\dfrac{6}{7} - \dfrac{2}{6} =$ _____

4. $\dfrac{4}{6} - \dfrac{4}{8} =$ _____

Find the reciprocal of the number

1.) ¼   2.) 26   3.) $7\dfrac{4}{5}$

Multiply or divide. (No calculator, give answer in simplest form)

1. $\dfrac{1}{4} \div \dfrac{9}{10} =$ _____

2. $\dfrac{5}{9} \div \dfrac{1}{2} =$ _____

3. $\dfrac{1}{3} \div \dfrac{6}{9} =$ _____

4. $\dfrac{8}{10} \div \dfrac{2}{5} =$ _____

1. $\dfrac{6}{8} \times \dfrac{3}{12} = $ _____

2. $\dfrac{1}{2} \times \dfrac{4}{5} = $ _____

3. $\dfrac{2}{4} \times \dfrac{7}{8} = $ _____

4. $\dfrac{2}{7} \times \dfrac{7}{9} = $ _____

5. $\dfrac{4}{10} \times \dfrac{1}{6} = $ _____

6. $\dfrac{2}{5} \times \dfrac{1}{4} = $ _____

Evaluate each expression with the given values using correct order of operations. Simplify.

1) $n^2 - m$ use m = -7 and n = 8

2) $8(x - y)$ use x = 5, y = -2

3) $xy \div 2$ use x = 7 any y = -4

4) $m - n \div 4$ use m = 5 and n = 8

Find the unknown Number: (round answers to 2 decimal places)

1) 16% of 46

2) 22 is what percent of 50

3) During peak season, a hotel room costs $135 per night. During the off-season, it costs $90 per night. Which describes the percent of change from peak season to off-season?

A. $33\frac{1}{3}$% decrease

C. 50% increase

B. $33\frac{1}{3}$% increase

D. 50% decrease

Simplify each expression. (no calculator)

5) $9 + 8 - 7$

6) $9 - 32 \div 4$

7) $5(10 - 1)$

8) $48 \div (4 + 4)$

9) $20 \div (4 - (10 - 8))$

10) $40 \div 4 - (5 - 3)$

Combine like terms.

1. $3x - 8x + 7y$

2. $5x - 8 + 12x + 6$

3. $17x - 5 + 2x + 10$

4. $5 - 10 + x + 9x$

5. $6y - 7y + 15y$

6. $3x - 4y + 7x + y$

Distribute and Simplify each expression.

21) $-4 + 7(1 - 3m)$

22) $-5n + 3(6 + 7n)$

23) $-2n - (9 - 10n)$

24) $10 - 5(9n - 9)$

25) $9a + 10(6a - 1)$

26) $-9(6m - 3) + 6(1 + 4m)$

Show all steps to solve these equations:

1.) $-20 = -4x - 6x$

2.) $22 = -1 + 2n - 5$

3) $8x - 2 = -9 + 7x$

4) $a + 5 = -5a + 5$

5) $4m - 4 = 4m$

6) $p - 1 = 5p + 3p - 8$

7.) 5p -14 = 8p + 4

8.) 3(x+2) = 18

Find the value of the unknown number in each proportion.

a.) $\dfrac{m}{2} = \dfrac{3}{4}$

b.) $\dfrac{n}{14} = \dfrac{4.5}{7}$

c.) $\dfrac{27}{18} = \dfrac{p}{7}$

d.) $\dfrac{x}{-3} = \dfrac{7}{-10.5}$

<u>Complete the following questions regarding measures of center:</u>

1) The heights (in cm) of 9 students of a class are as follows:

    155, 160, 145, 149, 150, 147, 152, 144, 148

Find the median of this data.

2) Find the mode and range of the following quiz scores (out of 10) obtained by 10 students.

    4,   6,   5,   9,   3,   2,   7,   7,   1,   8

3) The following number of goals were scored by a team in a series of 10 matches.

    2,   3,   4,   5,   0,   1,   13,   23,   4,   3

Find the mean and median of these scores.

4) On a mathematics test given to 15 students, the following scores(out of 100) were recorded:

    41, 39, 48, 52, 46, 62, 54, 40, 96, 52, 98, 40,
    42, 52 60,

Find the mean, median and mode of this data.

Plot and label each point on the given graph:

A (4,-3)	E (-2,-3)
B (2.5,4)	F (-4,6)
C (-3,0)	G (5,4)
D (-6.5,-5)	H (0,-7)
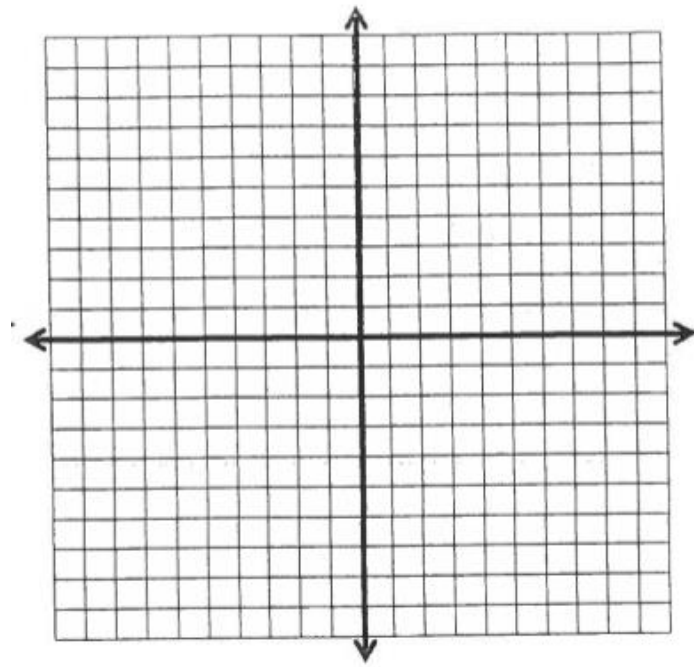
Find the slope between the points. (Remember $\frac{0}{\#} = 0, \frac{\#}{0} = undefined$)
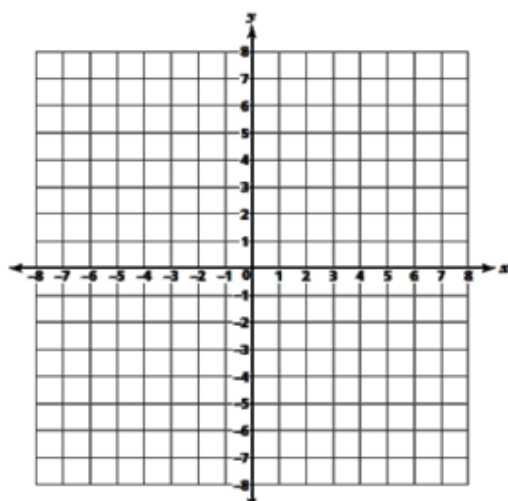
1.) (3,1) & (0,7)   3.) (3,4) & (0,2)

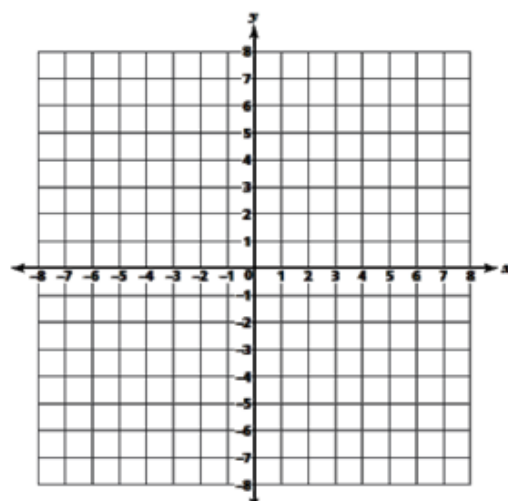2.) (-2, 6) & (1,3)   4.) (5,-1) & (4, -1)

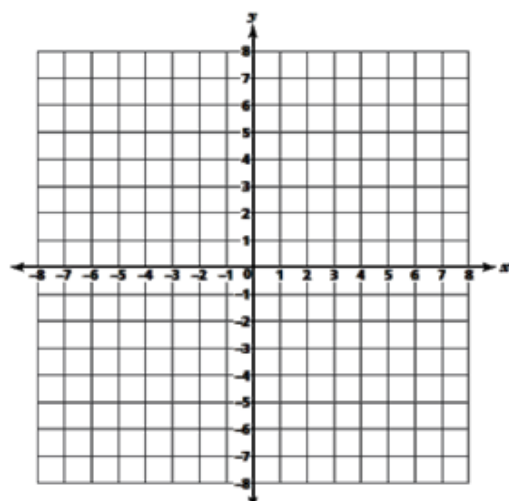**1** Complete the table for $y = x + 3$ and graph the resulting line.

x	y
-5	
0	
4	

3 Complete the table for $y = -2x$ and graph the resulting line.

x	y
-4	
0	
3	

2 Complete the table for $y = 3x + 1$ and graph the resulting line.

x	y
-3	
0	
2	

4 Complete the table for ▮▮▮▮▮ and graph the resulting line.

$2x - 4y = 20$

x	y
-3	
0	
4	
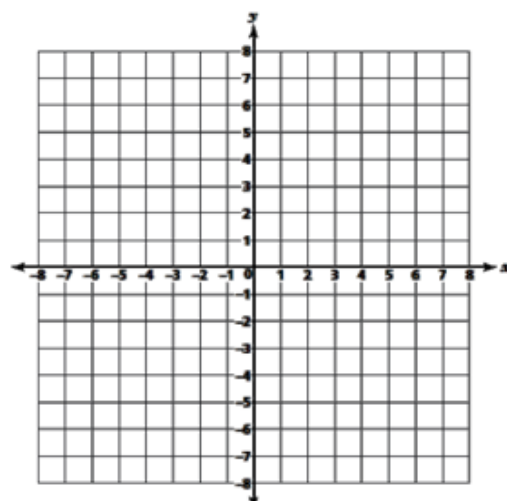
Write the equation for the line given the slope and y intercept.

1) Slope $= -1$, y-intercept $= -5$

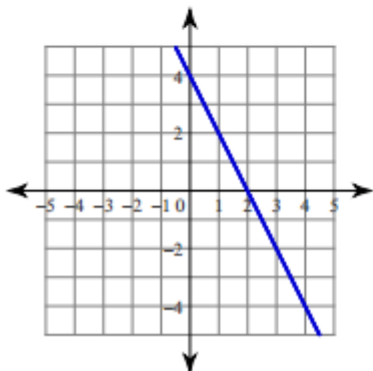2) Slope $= -1$, y-intercept $= -1$

3) Slope $= \dfrac{3}{2}$, y-intercept $= 0$

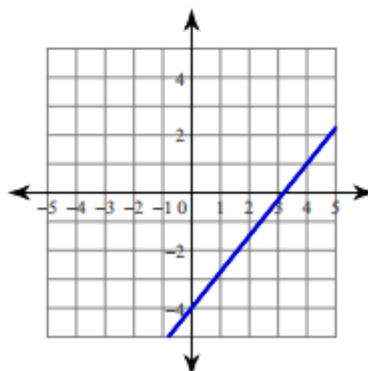4) Slope $= -\dfrac{3}{4}$, y-intercept $= -4$

5) Slope $= -\dfrac{3}{5}$, y-intercept $= 2$

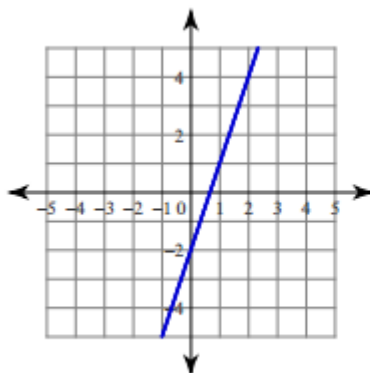**Find the slope and y-intercept of each line. Write the equation of the line.**

6)

7)

8)

9)