

- ① Define: ④ simplify an algebraic expression
⑥ the symmetric property of equality

② Simplify:

$$4x^3 + 2(3x^2 + 5x) + 6x^2 + 2x^3 - 4(x^3 + x^2)$$

③ Simplify:

$$2(c + d) - d$$

④ Evaluate: ④

$$\frac{\frac{2}{5}}{\frac{3}{8}}$$

⑥ $\frac{\frac{3}{4}}{5}$

⑦ $\frac{\frac{2}{2}}{\frac{2}{7}}$

⑤ What is the reciprocal of $-\frac{2}{3}$?

💡 Any number times its reciprocal = +1

Fraction Rules: +, - common denominator

• $\frac{\text{tops} \cdot \text{tops}}{\text{bottoms} \cdot \text{bottoms}}$

÷ flip & multiply

Ex

$$\frac{1}{2} + \frac{1}{3}$$

$$\frac{1}{6} + \frac{1}{6} = \frac{2}{6}$$

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

Ex

$$\frac{1}{2} \cdot \frac{1}{3}$$

$$\frac{1}{6}$$

Ex

$$\frac{\frac{1}{2}}{\frac{1}{3}}$$

$$\frac{1}{2} \cdot \frac{3}{1} = \frac{3}{2}$$

Algebra 1 ^{Quarter 1} Quiz 2 Results

Overall : 80.2% Avg 2008

: 80.0% Avg 2009

78% Avg 2010

Lessons Learned:

- ORGANIZE NOTES - MANY MISSED AN EASY DEFINITION (SYMMETRIC POE)
- USE ARROWS FOR DP, EACH ARROW IS ONE MULTIPLICATION

$$a(b+c) + d \Rightarrow \overbrace{a(b+c)}^{ab+ac} + d \quad \checkmark$$

NOT $ab + ac + ad$

- SHOW WORK, WRITE *ENTIRE ORIGINAL problem.
*(the math part)
- PAY VERY CLOSE ATTENTION TO PARENTHESES, THEY ARE VERY, VERY, VERY IMPORTANT IN ALGEBRA.
They mean something!!

*d →

EQUATION

A MATH EXPRESSION WITH AN EQUALS SIGN

In Algebra, we are going to work with equations that include variables. These equations may be true or false depending on what numbers we "substitute" for the variables.

(EX) $3x = 6$ is an equation with one variable x
 $3(5) \stackrel{?}{=} 6$ $x = 5$ gives a false expression.
 $3(2) \stackrel{?}{=} 6$ $x = 2$ gives a true expression

*d

Solution to
an equation

the value(s) of a variable which, when substituted into the original equation, result in a true expression.

In the earlier example, $x = 2$ is a solution to the equation $3x = 6$.

(*)d SET

A collection of things, in algebra these "things" will usually be numbers.

(*)d SET
NOTATION

BRACES ARE USED TO INDICATE A SET

(EX) $\{2, 4, 6, \dots\}$ is one way to show a set of even numbers

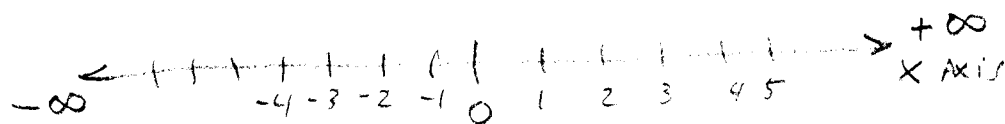
(*)d SOLUTION
SET

the set of value(s) of a variable in an equation which, when substituted into the original equation, result in a true expression.

(EX) the equation $3x = 6$ has the solution set $x = \{2\}$

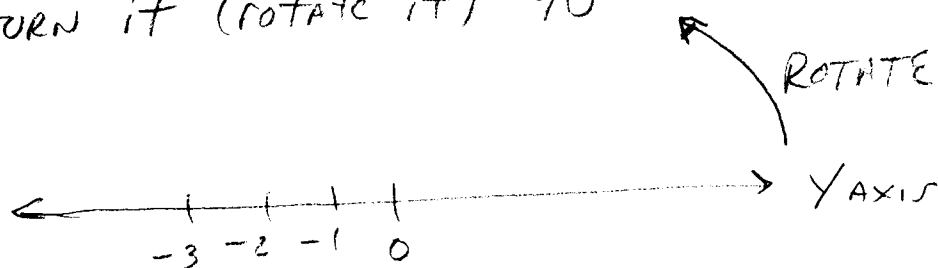
Building A "COORDINATE system"

Take A number line and call it the "X line" or "X AXIS"



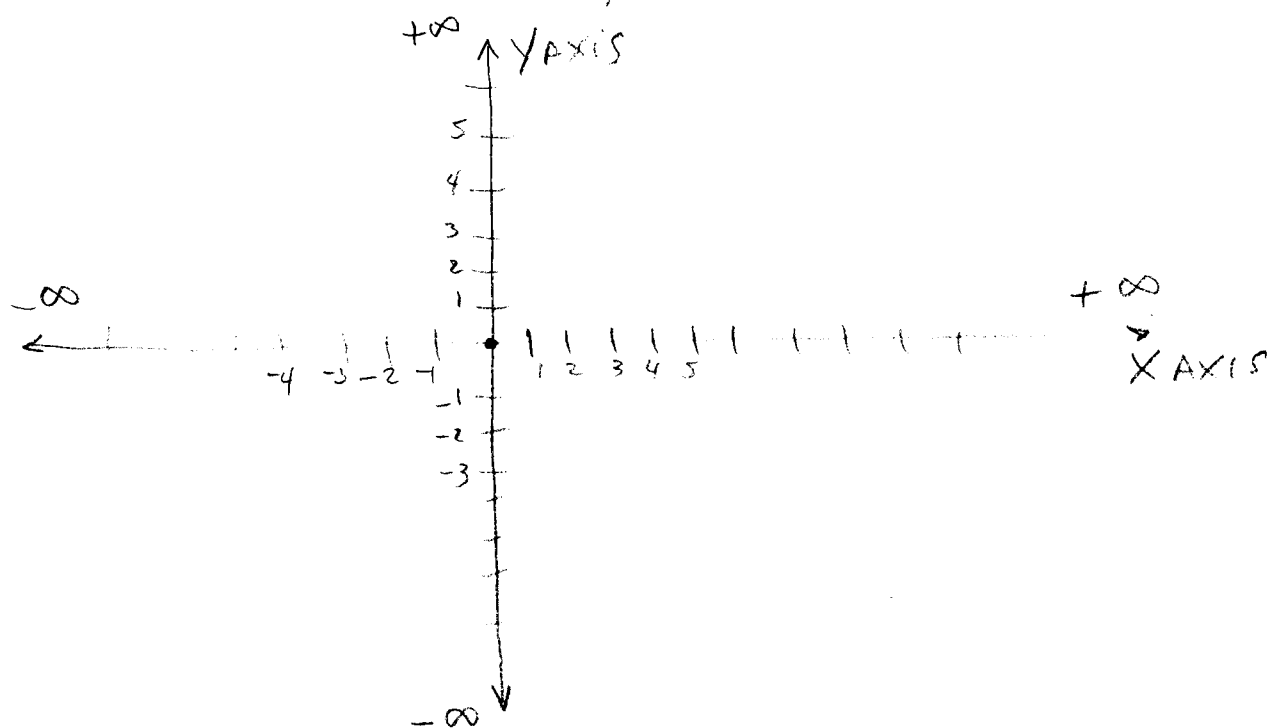
Take A second number line, call it the "Y line" or "Y AXIS"

AND turn it (rotate it) 90°



Then put the two AXES together

↑
PLURAL of AXIS



In the coordinate system, ANY point in the infinite plane (flat surface) can be found using an "ordered pair"

$\uparrow$ $\uparrow$
 X then Y Need two numbers

Written as (X, Y) (EX) $(2, 3)$

$\uparrow$ $\nwarrow$
 X coordinate Y coordinate

$(\frac{1}{2}, 6)$
 $(-2, 1.\bar{4})$
 $(\pi, -0.2)$

(*) Center point $(0, 0)$ is called the ORIGIN

X, Y

(*) 4 "quadrants"

(*) invented by Rene Des Cartes - French Philosopher

"Cogito ergo sum"

Cartesian Coordinate System
or X-Y Coordinate System

Homework: ① ORGANIZE NOTES (KNOW today's definitions)

② $+, -, \cdot, \div$ $\boxed{\frac{3}{4}}$ AND $\frac{2}{3}, \frac{4}{5}, \frac{7}{8}, \frac{12}{5}, \frac{4}{3}$ (EX) $\frac{3}{9} + \dots \frac{3}{4} - \dots$