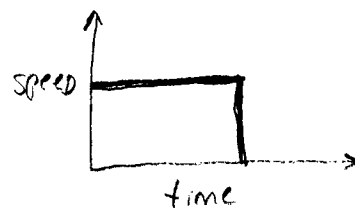
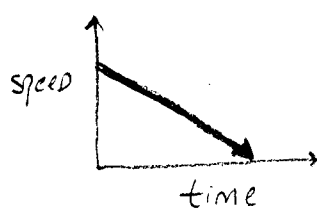
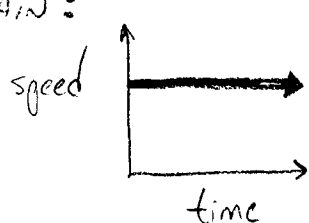
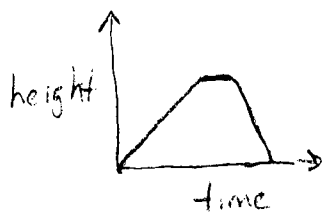


① Simplify:  $3(x+y) + 2(x+y) - 4x$

- ② A radio controlled (RC) car moves until it hits a wall. Which graph shows this, explain:



- ③ A plane takes a skydiver to the "jump" altitude. Which skydiver would you rather be? Why?



- ④ DEFINE A RELATION.

RELATION A SET OF ORDERED PAIRS.

(EX)  $\{(2, 3), (5, -1), (8, 6)\}$

• Exam 1 Next Week

(\*)

## Summary of Fraction Rules:

$+$ ,  $- \Rightarrow$  Common denominator

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

$\div \Rightarrow$  flip and  $\cdot$  the bottom

NOTE: make a fraction out of any integer by putting it over 1

## Sign Rules:

(EX)  $3 + -2$

$\left\{ \begin{array}{l} 3 \text{ plus negative } 2 \\ 3 \text{ minus } 2 \end{array} \right\}$  SAME RESULT

$3 - 2$  preferred in algebra

(EX)  $3 + 2$

(EX)  $-3 - 2$   
or

$-3 + -2$

(EX)  $9 + 8 = 17$

(EX)  $9 - 8 = 1$

(EX)  $-9 - 8 = -17$

(EX)  $-9 + 8 = -1$

Summary:  $+$ ,  $-$  SSA, KSS      Same sign add, keep same sign  
DSS, BOW      Different sign subtract, biggest one wins

|               |   |                  |
|---------------|---|------------------|
| (EX) $-5 - 5$ | { | $-5.6 - 3.4$     |
| $-5 + 8$      |   | $-1 - 1 - 1 - 1$ |
| $8 - 6$       |   | $5 - 12$         |
| $-6 - 2$      |   | $-12 + 12 - 12$  |
| $-6 + (-2)$   |   | $-12 - 12 + 12$  |
| $-10 + 8$     |   | $-12 + 12 + 12$  |

Special case:  $6 - (-2)$

$$6 - (-2) = 8$$

Subtracting a negative is a positive.

The multiply and divide rules are easier:

"SPDN" Same Signs Positive, Different Signs Negative  
 "spit in"

(EX)  $2 \cdot 3 = 6$  or  $-2 \cdot -3 = 6$

(EX)  $\frac{8}{2} = 4$  or  $\frac{-8}{-2} = 4$

(EX)  $-2 \cdot 3 = -6$  or  $2 \cdot -3 = -6$

(EX)  $\frac{8}{-2} = -4$  or  $\frac{-8}{2} = -4$

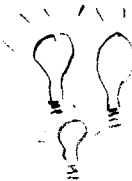
# \*m Summary of Sign Rules:

$$+, - \Rightarrow \text{SSA, KSS}$$

$$\Rightarrow \text{DSS, BOW}$$

$$\Rightarrow \text{SPECIAL CASE } -(-) = \overset{+}{\cancel{(-)}}$$

$$\cdot, \div \Rightarrow \text{SPDN}$$

 TIP<sup>3</sup>: Figure out THE sign first, then do the math !!!

(Ex)  $-8 \cdot -9 = \text{positive } + 72$   
(SPDN) (3·9)

(Ex)  $-7 - 7 \Rightarrow \text{NEGATIVE } -14$   
(SSA, KSS) (7+7)

(Ex)  $-6(5)$

$$-6 + 5$$

$$-6(-5)$$

$$6 - 5$$

$$6 - (-5)$$

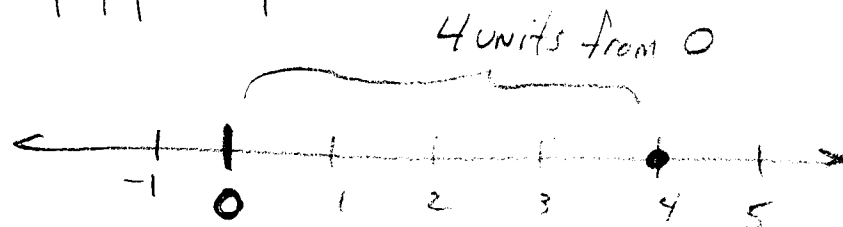
$$\begin{array}{r} -6 \\ -5 \\ \hline \end{array}$$

(\*d)

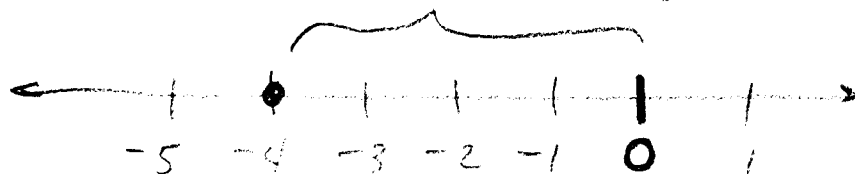
ABSOLUTE  
VALUE  
of a  
number

the distance of a number from zero  
on a number line. Distance is  
Always positive. Symbol  $|N|$

(Ex)  $|4| = 4$



(Ex)  $|-4| = 4$  4 units from 0



(Ex)  $|3| =$

$|-3| =$

$|\frac{1}{2}| =$

$|\frac{-1}{2}| =$

$|0.5| =$

Note:  $|$  ABS VALUE  $|$  the absolute value symbol is also  
A grouping symbol.

RECALL:

EQUATION MATH EXPRESSION WITH AN EQUALS SIGN

SOLUTION TO AN EQUATION A <sup>(NUMBER)</sup> VALUE FOR THE VARIABLE (OR VARIABLES) IN A EQUATION WHICH, WHEN SUBSTITUTED INTO THE ORIGINAL EQUATION PRODUCE A "TRUE" EXPRESSION.  $\text{EX } 3x = 6$

$\uparrow$   
2 IS A SOLUTION TO THIS EQUATION.

If I add +3 to something, how could I "undo" it?

$$+3 - 3 = 0$$

If I subtract 3 from something, how could I "undo" it?

$$-3 + 3 = 0$$

(\*d) Addition and subtraction undo each other

★ (\*m) GRE The Golden Rule of Equations  
do unto others...

"Whatever you do to one side of an equation,  
do to the other"

$$\begin{array}{ccc}
 x + 5 & = & 8 \\
 \text{LEFT} & & \text{RIGHT} \\
 \text{SIDE} & & \text{SIDE}
 \end{array}$$

Let's put this all together to solve and check our solution to equations using addition or subtraction "undos" as needed to get "the variable by itself" (EX)  $X = 2$

↑  
+1 coefficient,  
No other terms on  
left side.

Notes:  $Z = X$

$X = Z$

by Symmetric Property

\* (EX) Solve:  $X - 8 = 15$

$+8 \quad +8$

$X = 23$

GOAL: use "undos" and the GAE to get the variable "by itself."

CK:  $( ) - 8 \stackrel{?}{=} 15$

$(23) - 8 \stackrel{?}{=} 15$

$15 \stackrel{?}{=} 15 \quad \checkmark$

NOTE pattern: complete equation

WHAT you do to each side

complete equation

Rinse and Repeat

### Practice:

$$\textcircled{1} \quad h - 3 = -2$$

$$\textcircled{2} \quad 20 = y - 8$$

$$\textcircled{3} \quad b - 40 = -40$$

$$\textcircled{4} \quad m - (-12) = 10$$

$$\textcircled{5} \quad w - \frac{3}{2} = \frac{1}{4}$$

$$\textcircled{6} \quad 19 + h = -4$$

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### Homework:

- Pg 101 # 64 to 74, 81.

- Pg 132 # 15 to 23. Include checks!!