

Mental Math Warming:

① $\frac{2}{3}(8)$

② $\frac{3}{4}(\frac{1}{2})$

③ $6(\frac{3}{5})$

④ $\frac{1}{2}(\frac{1}{5})$

⑤ $-3-6$

⑥ $-3(\frac{3}{9})$

⑦ $5-(-2)$

⑧ $\frac{\frac{2}{5}}{4}$

⑨ $\frac{\frac{5}{8}}{\frac{2}{3}}$

ACT ① If $9(x-9) = -11$ then $x = ?$
 KMF
 June 09

↓
 ② If $r = 9$, $b = 5$, and $g = -6$, what does $(r+b-g)(b+g)$ equal?

① $9(x-9) = -11$

$$9x - 81 = -11$$

$$+81 \quad +81$$

$$\frac{9x}{9} = \frac{70}{9}$$

$$x = \frac{70}{9}$$

②

$$\left\{ \begin{aligned} &[(9) + (5) - (-6)] [(5) + (-6)] \\ &[20] [-1] = \boxed{-20} \end{aligned} \right.$$

Read These Expressions: $x < 6$

$$x > 6$$

$$x \leq 6$$

$$x \geq 6$$

$$x = 6$$

MATH EXPRESSION WITH AN EQUALS SIGN $\Rightarrow$ EQUATION

MATH EXPRESSION WITHOUT EQUALS SIGN $\Rightarrow$ "NOT EQUATION"
INEQUALITY

How Does -6 compare to -5 ?

How Does 6 compare to 5

$$-6 < -5$$

$$6 > 5$$

Positives AND negatives "compare" differently.
So if you are solving an inequality, you
have to worry if you do an undo
that "changes all signs" — let's see...

Try $+, -, \cdot, \div \Rightarrow$ OK

Try $\cdot, \div$ WITH A NEGATIVE!

oops $\Rightarrow$ must change ALL signs which includes "flipping the $<, >, \leq, \geq$ symbol"

GRI - Golden Rule of Inequalities

"same as GRE plus, if you multiply or divide by a negative, flip the inequality symbol."

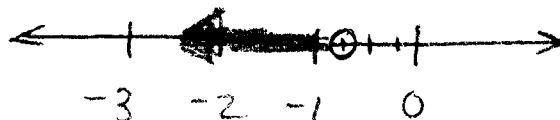
(ex) $5 - 4a > 8$

$-5 \quad -5$

$-4a > 3$

$\underline{-4} \quad \underline{-4}$

$a < -\frac{3}{4}$



💡 WHEN USING GRI,
ASK YOURSELF AT
EACH STEP "DO I NEED TO FLIP?"

$<, > \Rightarrow$ open $\circ$

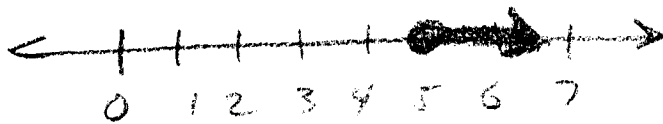
$\leq, \geq \Rightarrow$ filled $\bullet$

$$\textcircled{\text{EX}} \quad 3x + 4 \geq 19$$

$$\quad \quad -4 \quad \quad -4$$

$$\frac{3x}{3} \geq \frac{15}{3}$$

$$\boxed{x \geq 5} \text{ or } \{x | x \geq 5\} \text{ or } [5, +\infty)$$



$$\textcircled{\text{EX}} \quad x > 3 = (3, +\infty)$$

$$\textcircled{\text{EX}} \quad x < 12 = (-\infty, 12)$$

$$\textcircled{\text{EX}} \quad x \leq 12 = (-\infty, 12]$$

Ch. 1-5 Solving Inequalities

$$\text{EX 3} \quad -m \leq \frac{m+4}{9}$$

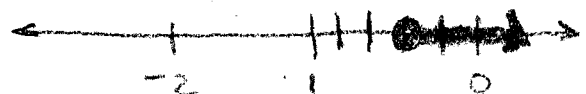
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$$9(-m) \leq \frac{m+4}{9} \cdot 9$$

$$\begin{array}{r} -9m \leq m+4 \\ -m \quad -m \end{array}$$

$$\begin{array}{r} -10m \leq 4 \\ \hline -10 \quad -10 \end{array}$$

$$\boxed{m \geq -\frac{2}{5}}$$



• Homework: PAGE 37-38 #4-12, 35, 36, 50, 51