

BE-1A MONDAY 5-5-08

① Solve $2x - 6 = 4$

② Solve $\frac{4}{5}x - 2 = 6$

③ Solve $-3(x+2) < 12$

④ GRAPH $y = -3x - 4$

⑤ GRAPH $2x + y = 5$

⑥ Solve $|x-2| < 3$, graph THE SOLUTION

① $2x - 6 = 4$
+6 +6

$$\frac{2x}{2} = \frac{10}{2}$$

$x = 5$

CK $2(5) - 6 \stackrel{?}{=} 4$
 $10 - 6 \stackrel{?}{=} 4 \checkmark$

② $\frac{4}{5}x - 2 = 6$
+2 +2

$$\frac{4}{5}x = 8$$

$$\frac{5}{4} \cdot \frac{4}{5}x = \frac{8}{1} \cdot \frac{5}{4}$$

$x = \frac{10}{1} = 10$

CK: $\frac{4}{5}(10) - 2 \stackrel{?}{=} 6$
 $8 - 2 \stackrel{?}{=} 6 \checkmark$

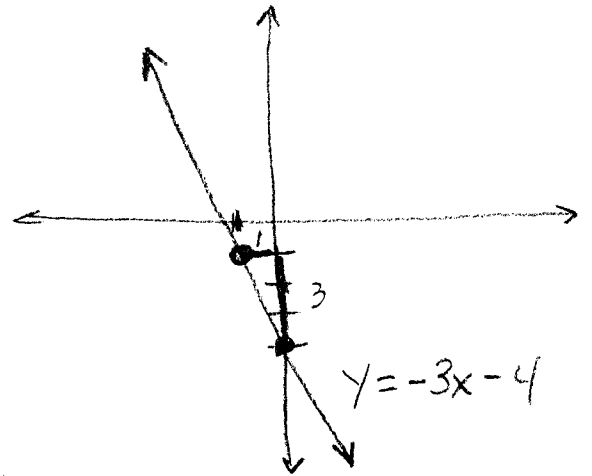
$$\textcircled{3} \quad -3(x+2) < 12$$

$$\begin{array}{rcl} -3x - 6 & < & 12 \\ +6 & +6 & \end{array}$$

$$\begin{array}{rcl} -3x & < & 18 \\ -3 & \text{Flip} & -3 \end{array}$$

$$\boxed{x > -6}$$

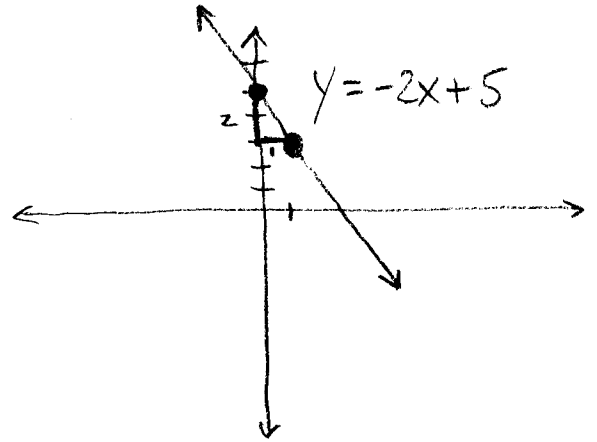
④



$$\textcircled{5} \quad 2x + y = 5$$

$$\begin{array}{rcl} -2x & & -2x \\ y & = & -2x + 5 \end{array}$$

$$y = -2x + 5$$



⑥

$$|x - 2| < 3$$

⊕

$$x - 2 < 3$$

$$\begin{array}{rcl} +2 & +2 & \end{array}$$

$$\boxed{x < 5}$$

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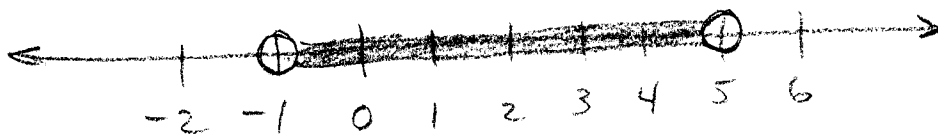
AND

⊖

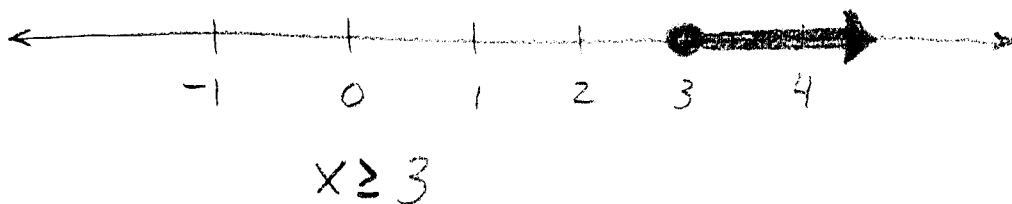
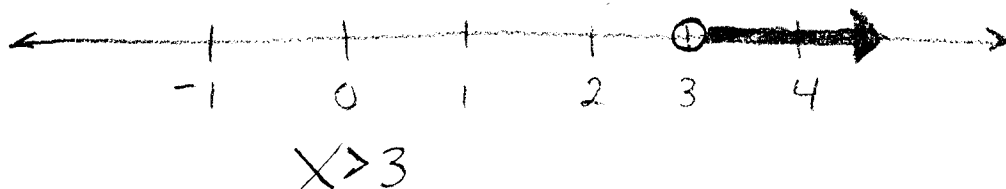
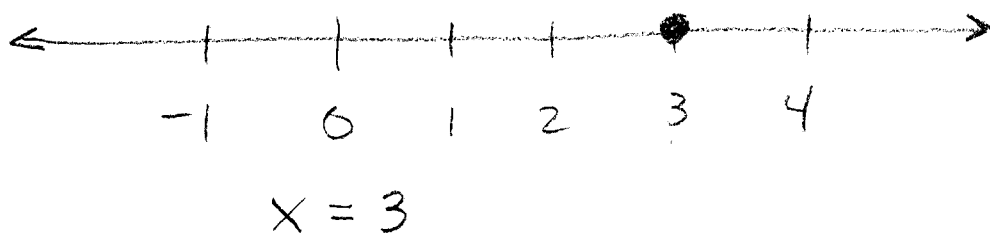
$$-(x - 2) < 3$$

$$\begin{array}{rcl} x - 2 & > & -3 \\ +2 & +2 & \end{array}$$

$$\boxed{x > -1}$$



COMPARE THE GRAPHS OF THE FOLLOWING
EQUATIONS AND INEQUALITIES:



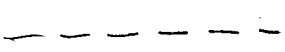
NOTICE HOW THE GRAPH OF $x \geq 3$ IS
THE SAME AS $x = 3$ AND $x > 3$ COMBINED.

RECALL: $<$, $>$ less than, greater than: use $\circ$
 $\leq$, $\geq$ less than or equal, greater than or equal: use $\bullet$

THE SOLID DOT SHOWS THE NUMBER UNDER THE DOT
IS INCLUDED IN THE GRAPH.

A similar method is used to show whether the points under a line are or are not included in a graph.

Solid line:  All points on the line ARE part of the graph

Dashed line:  All points on the line are not part of the graph.

This is used when graphing linear

EQUALITIES $\Rightarrow$ Ch 6-6 Graphing Inequalities in Two Variables


graphing on the x-y coordinate plane, not on a number line.

EX GRAPH $y - 2x \leq -4$

Step 1: Get y by itself, follow the GRI

$$\begin{array}{rcl} y - 2x & \leq & -4 \\ +2x & +2x & \end{array}$$

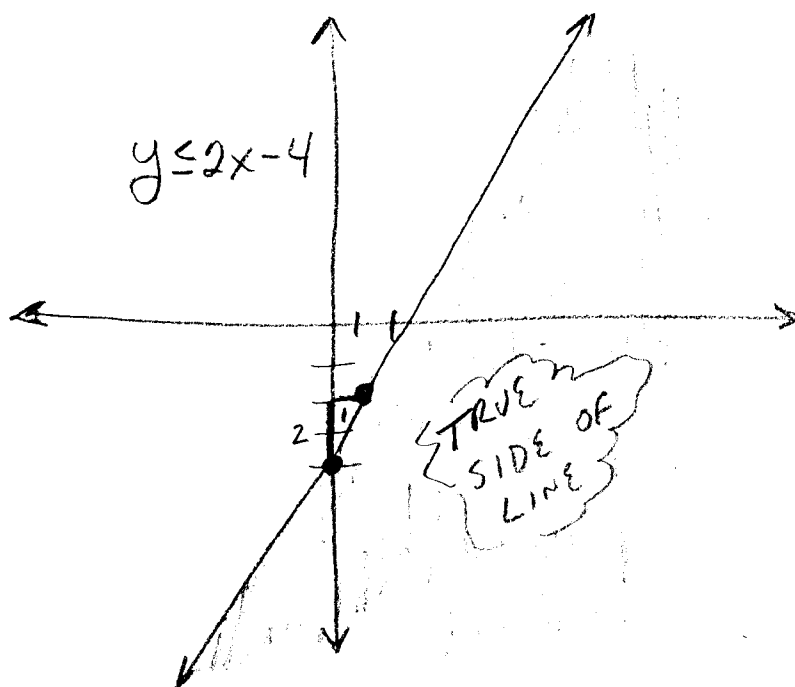
$$y \leq 2x - 4$$

Step 2: Graph the line $y = 2x - 4$

Use — for $\leq$ or $\geq$ lines
Use --- for $<$ or $>$ lines

Step 3

- for $<, \leq$ shade the area below the line.
- for $>, \geq$ shade the area above the line



CK (0,0) should be false

$$y - 2x \stackrel{?}{\leq} -4$$

$$0 - 0 \leq -4 \text{ FALSE} \checkmark$$

(10,0) should be true

$$y - 2x \stackrel{?}{\leq} -4$$

$$0 - 2(10) \stackrel{?}{\leq} -4$$

$$-20 \stackrel{?}{\leq} -4 \checkmark$$

(1, -2) should be equal and true

$$-2 - 2(1) \leq -4$$

$$-4 \leq -4 \text{ TRUE} \checkmark$$

Practice: Pg 355

(#7) $y \geq 4$

(#8) $y \leq 2x - 3$

(#9) $4 - 2x < -2$

(#10) $1 - y > x$

Homework: • Read Ch. 6-6

• Pg 356 # 26, 27, 28, 30, 31, 32.

Summary: Graphing Linear Inequalities

- ① Get y by itself, follow GRI
- ② Graph boundary line,
use for $\leq, \geq$
 for $<, >$
- ③ For: $<, \leq$ SHADE half-plane below line
 $>, \geq$ SHADE half-plane above line
- ④ Check True, False, Equal Points
 (x, y) pairs