

Name

5.7 Graph Linear Inequalities

Alg I

in Two Variables

I can graph linear inequalities in two variables.

Linear Inequality in Two Variables: $x - 3y < 6$,
the result of replacing $=$ with $<$, \leq , $>$, or \geq .
A solution for this is an ordered pair (x, y) that produces a true statement.

Ch. 5 Quiz

Example 1:

$$\begin{aligned} 1) \quad & -x + 2y < 8 \quad (0, 0) \\ & -0 + 2(0) < 8 \\ & 0 < 8 \quad \checkmark \quad \text{SOLUTION} \end{aligned}$$

$$\begin{aligned} 2) \quad & -x + 2y < 8 \quad (0, 4) \\ & -0 + 2(4) < 8 \\ & 8 < 8 \quad \times \quad \text{NOT A SOLUTION} \end{aligned}$$

$$\begin{aligned} 3) \quad & -x + 2y < 8 \quad (3, 5) \\ & -3 + 2(5) < 8 \\ & -3 + 10 < 8 \\ & 7 < 8 \quad \checkmark \quad \text{SOLUTION} \end{aligned}$$

Graph of an Inequality in Two Variables:

The set of all the points that are solutions of the inequality

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Steps to Graph a Linear Inequality

1) Graph boundary line

$< / >$: dashed line

\leq / \geq : solid line

Ch. 5 Quiz

2) Test a point (usually $(0,0)$)

3) Shade 1 side of the coordinate plane that works

Example 2/3

4) $x + 3y \geq -1$ → solid line

① Graph $x + 3y = -1$

② $0 + 3(0) \geq -1$

Test

$0 \geq -1$ ✓

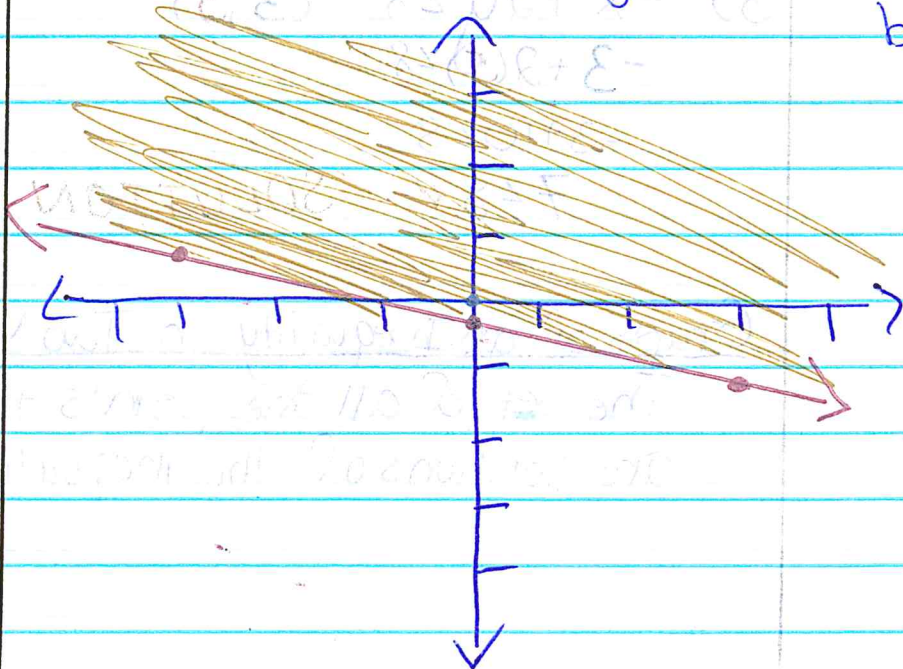
$3y = -x - 1$
 $y = -\frac{1}{3}x - \frac{1}{3}$

③ Shade

$y = -\frac{1}{3}x - \frac{1}{3}$

$m = -\frac{1}{3}$

$b = (0, -\frac{1}{3})$



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Graph Linear Inequalities in Two Variables

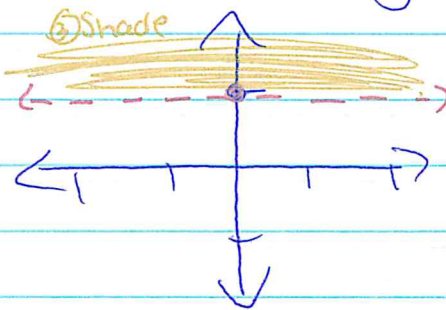
Alg I

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Example 4/5:

5) $y > 1$ ^{-dashed}

① Graph $y = 1$



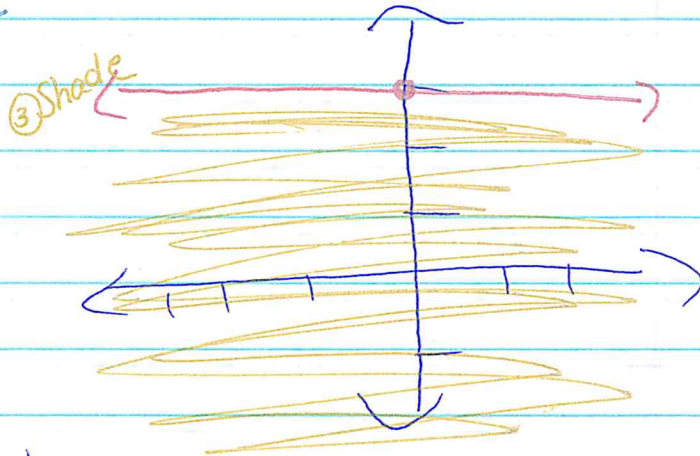
② Test

$0 > 1$ X

Ch. 5 Quiz

6) $y \leq 3$ ^{-solid}

① Graph $y = 3$



② Test

$0 \leq 3$ ✓

*Complete
Skills Practice
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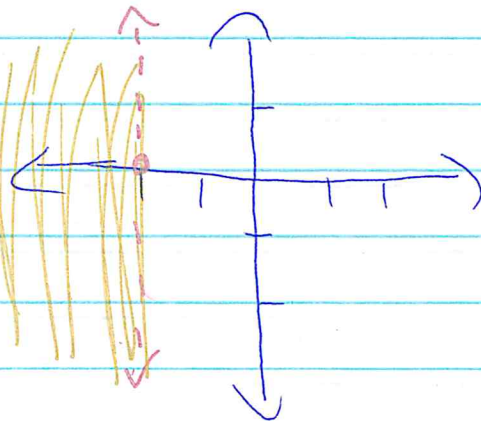
7) $x < -2$ ^{-dashed}

① Graph $x = -2$

② Test

$0 < -2$ X

③ Shade

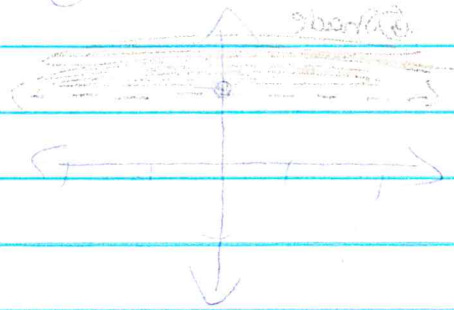


Graphical method in two variables

Graphical method

① Graph $\mu = 1$

② $\mu > 1$

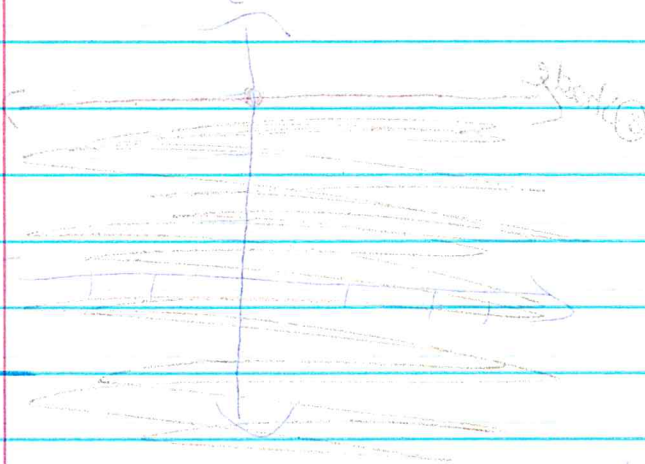


③ Test

$X = 1$

① Graph $\mu = 3$

② $\mu = 3$

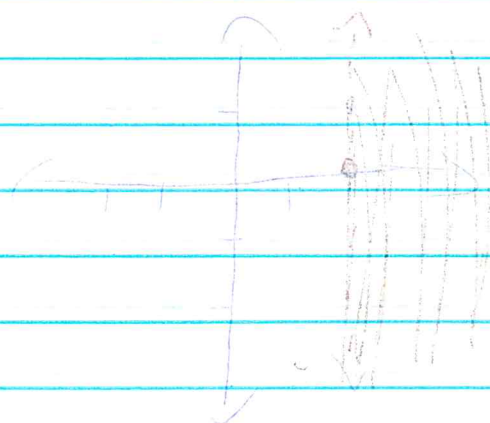


③ Test

$X = 3$

① Graph $X = -2$

② $X = -2$



③ Test

$X = -2$

④ Graph