3.3 Graphing Inequalties

1. Graph equation $y \leq 2x + 3$

$y = 2x + 3$

$\leq, \geq$ solid

$<, >$ dashed

2. Test a point one side of the line
Substitute ordered pair into the inequality

$y \leq 2x + 3$

$(0,0)$ $0 \leq 2(0) + 3$

$0 \leq 3$ True

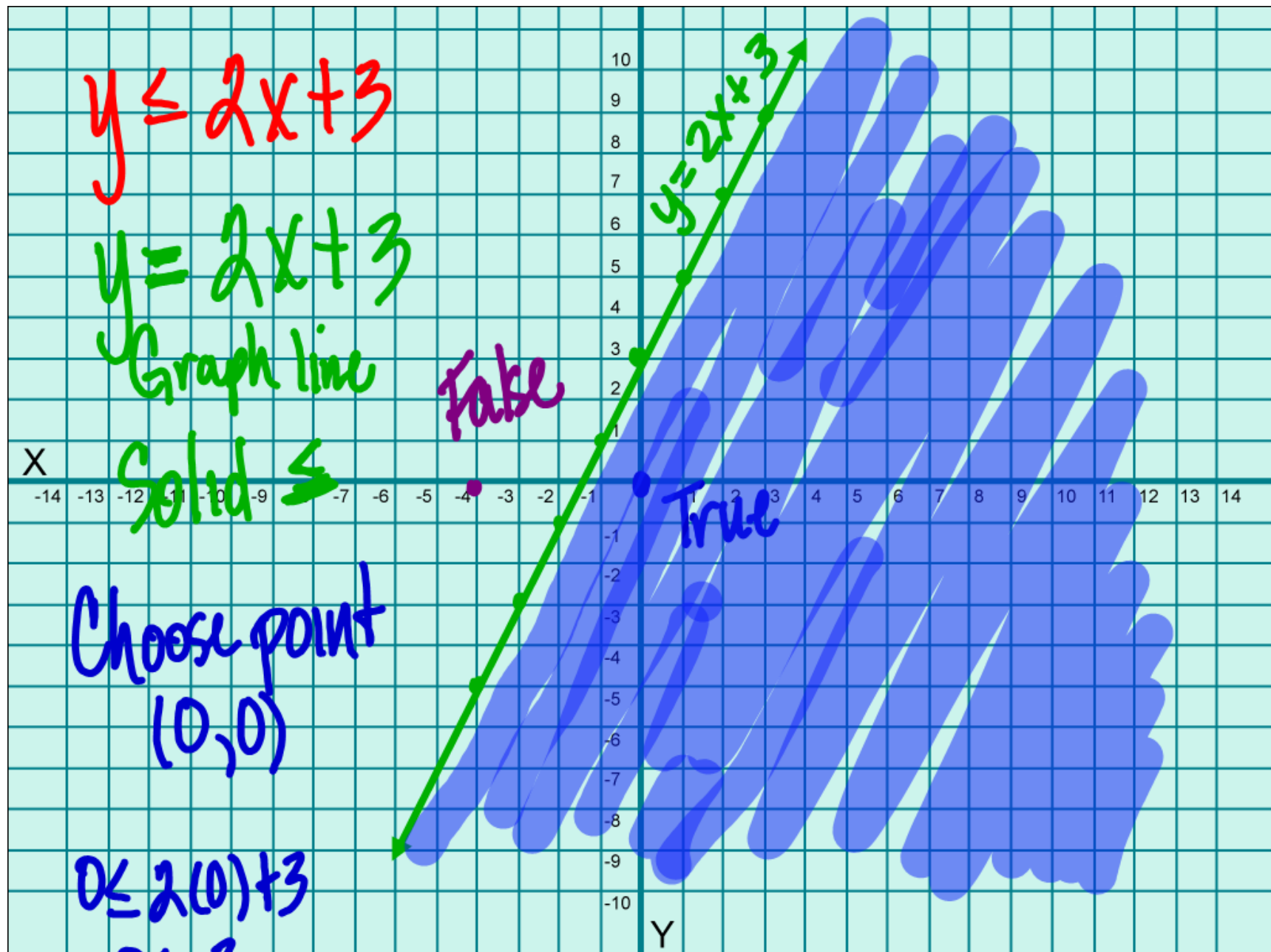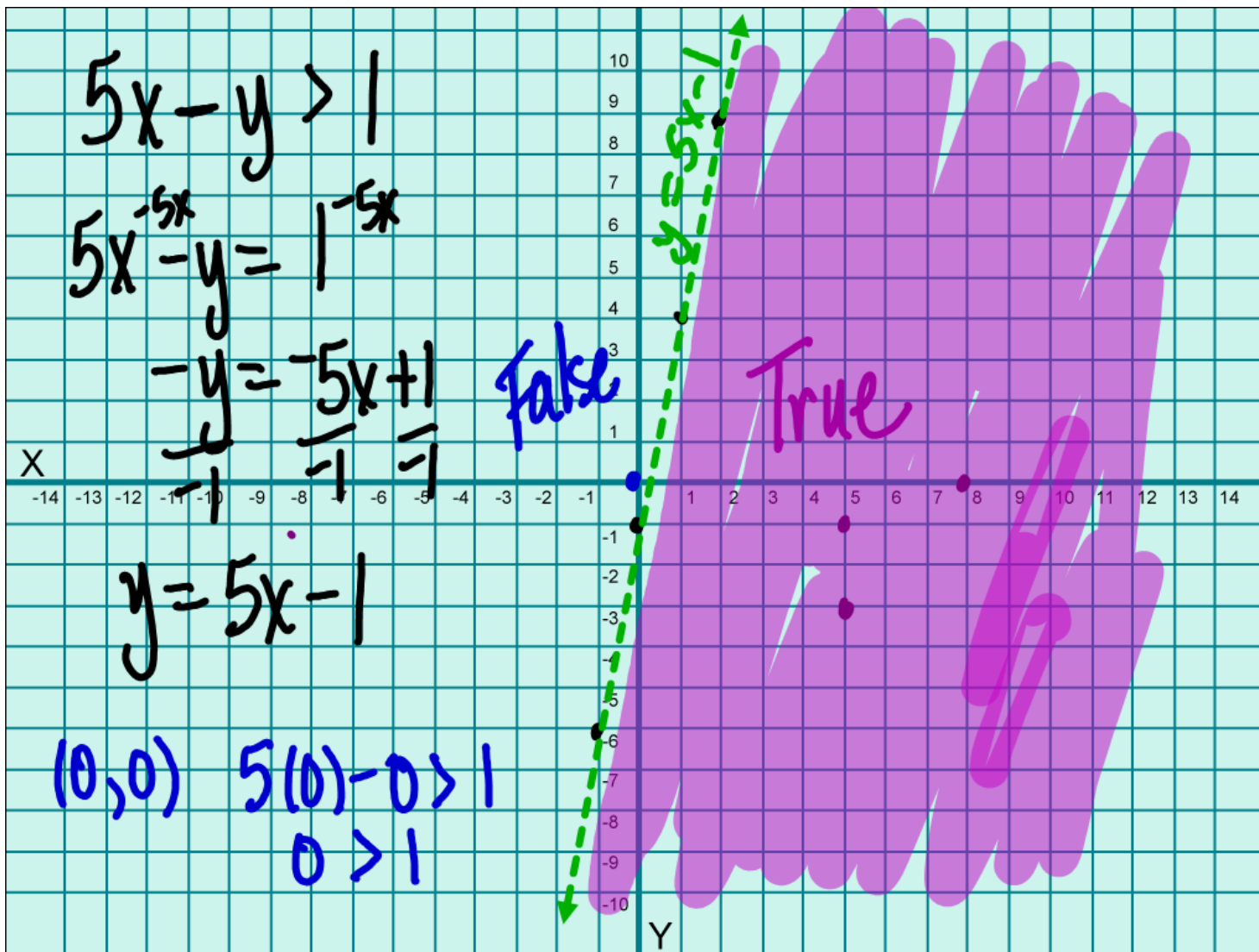3. Shade "True" side

$(-4,0)$ $0 \leq 2(-4) + 3$

$0 \leq -8 + 3$

$0 \leq -5$ False

$$y \leq 2x + 3$$

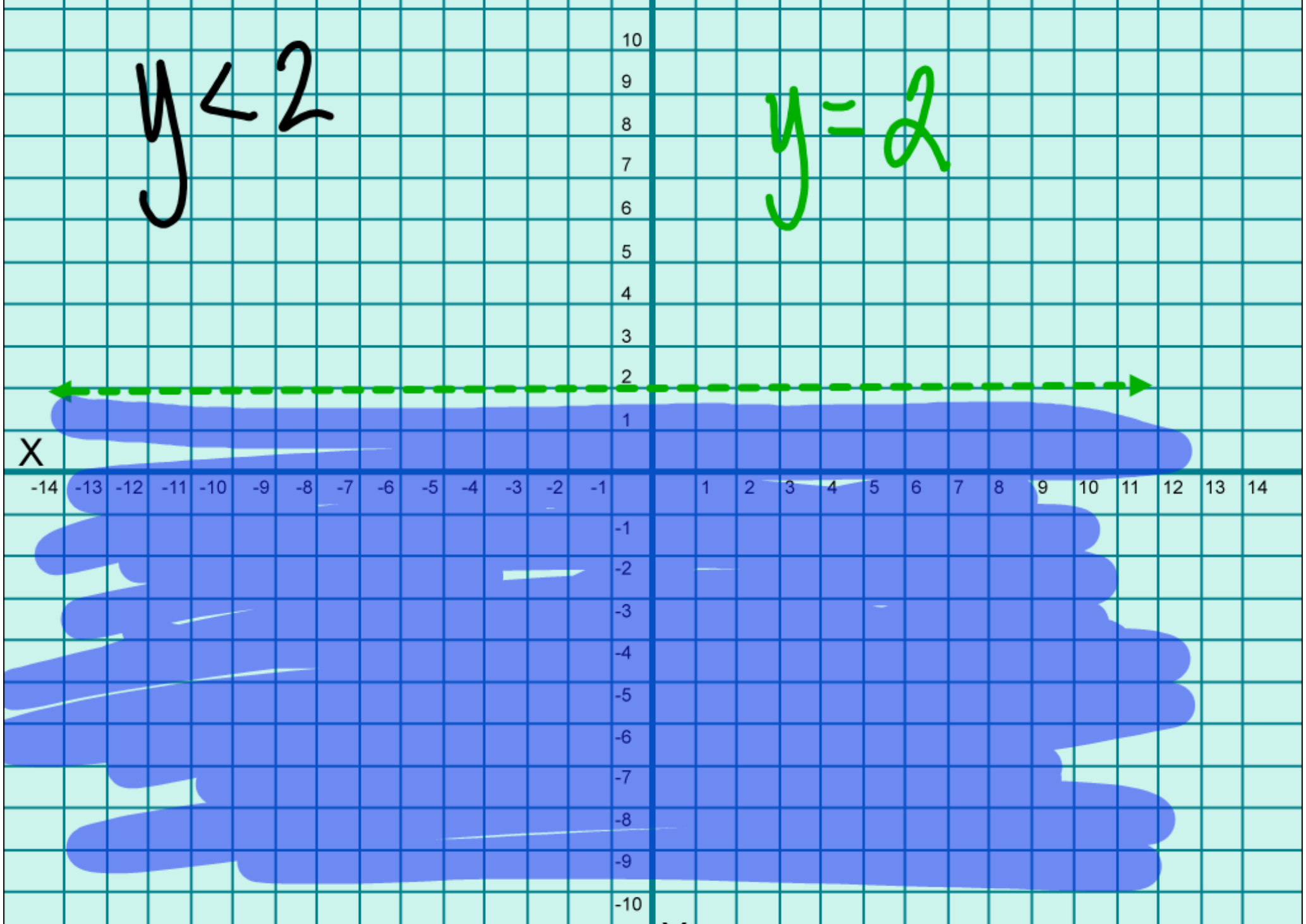$$y = 2x + 3$$

Graph line

Solid $\leq$

Choose point

$(0,0)$

$$0 \leq 2(0) + 3$$

$$0 \leq 3 \text{ True}$$

Fake

True

$y = 2x + 3$

X

Y

10 9 8 7 6 5 4 3 2 1 -1 -2 -3 -4 -5 -6 -7 -8 -9 -10

-14 -13 -12 -11 -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 1 2 3 4 5 6 7 8 9 10 11 12 13 14

$$5x - y > 1$$

$$5x^{-5x} - y = 1^{-5x}$$

$$\frac{-y}{-1} = \frac{-5x}{-1} + \frac{1}{-1}$$

$$y = 5x - 1$$

False

True

$$(0,0) \quad 5(0) - 0 > 1$$

$$0 > 1$$

$y < 2$

$y = 2$

X

-14 -13 -12 -11 -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 1 2 3 4 5 6 7 8 9 10 11 12 13 14

Y

Line
$x = -4$

X

$x \geq -4$

Y

Line $y = -3x + 5$

Choose point in shaded region

$0 \quad -3(0) + 5$

False

$0 < 5$

True

$y \leq -3x + 5$

$(0,0)$
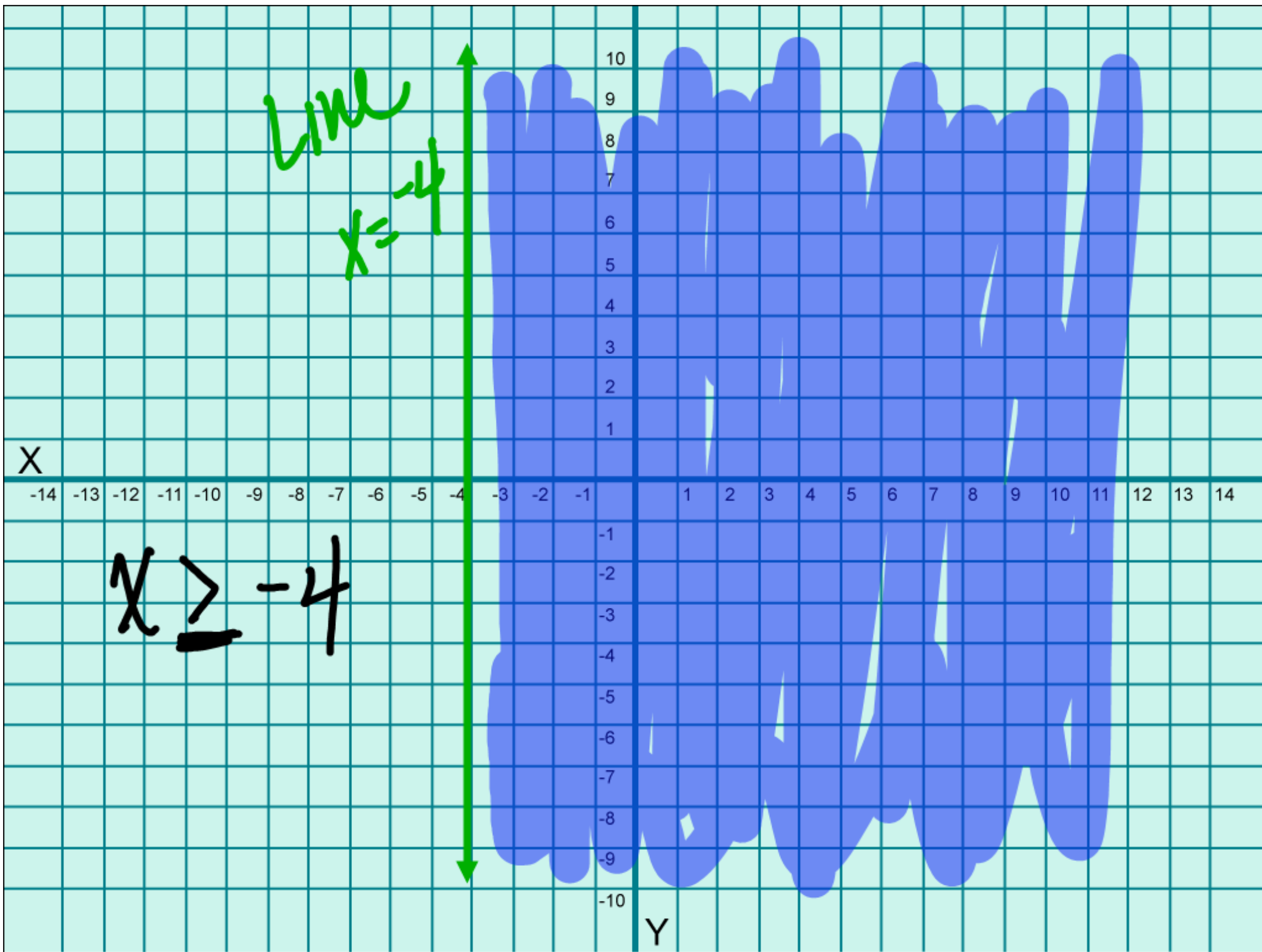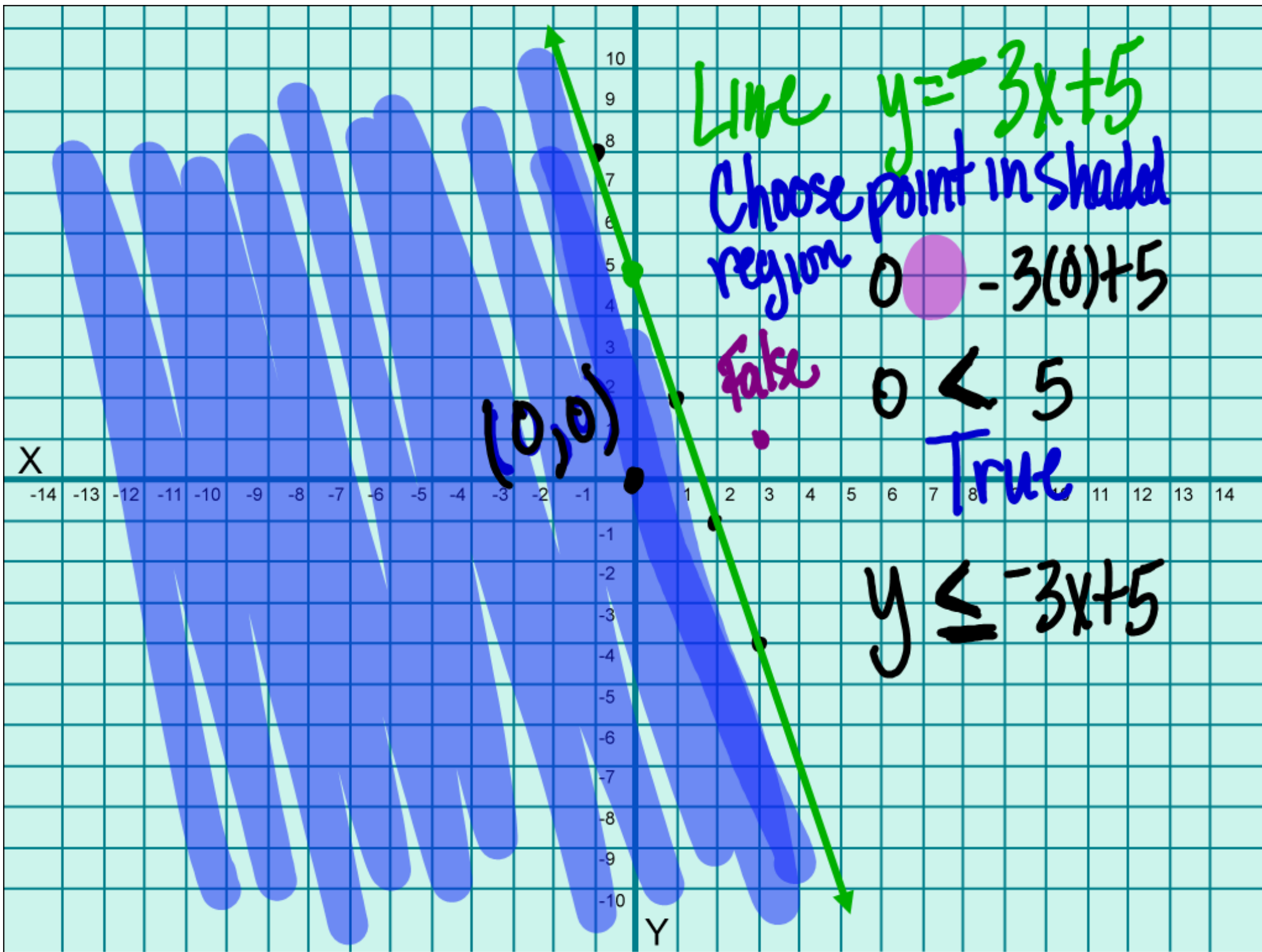
p 176

12 - 40   x 4

30

$y =$ Greater Than

$y =$ Less Than

$y =$