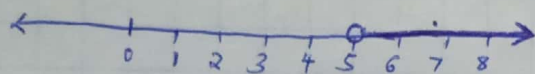


$$1. 3x - 5 > 10$$

$$~~3x > 15~~$$

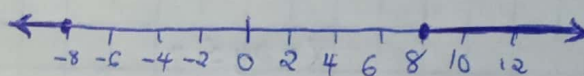
$$3x > 15$$

$$x > 5$$



$$2. |x| \geq 8$$

$$x \geq 8 \text{ or } x \leq -8$$

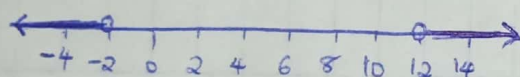
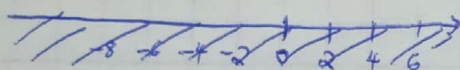


$$3. 3|x - 5| > 21$$

$$|x - 5| > 7$$

$$x - 5 > 7 \text{ or } x - 5 < -7$$

$$x > 12 \text{ or } x < -2$$



$$4. 2 \leq |x - 2| \leq 8$$

$$2 \leq |x - 2| \text{ and } |x - 2| \leq 8$$

$$2 \leq |x - 2| \Rightarrow |x - 2| \geq 2$$

$$x - 2 \geq 2 \text{ or } x - 2 \leq -2$$

$$x \geq 4 \text{ or } x \leq 0$$

$$|x - 2| \leq 8 \Rightarrow x - 2 \leq 8 \text{ and } x - 2 \geq -8$$

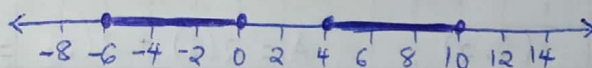
$$x \leq 10 \text{ and } x \geq -6$$

$$x \leq 10 \text{ and } x \geq -6$$

$$-6 \leq x \leq 10$$

$$(x \leq 0 \text{ or } x \geq 4) \text{ and } -6 \leq x \leq 10$$

$$\Rightarrow -6 \leq x \leq 0 \text{ or } 4 \leq x \leq 10$$



$$5. x^2 - 3x - 18 > 0$$

$$x^2 - 3x - 18 = 0$$

$$(x - 6)(x + 3) = 0$$

$$x = 6, x = -3$$

$$(x - 6)(x + 3) > 0$$

$$x - 6 = 0 \text{ for } x = 6$$

$$x - 6 < 0 \text{ for } x < 6$$

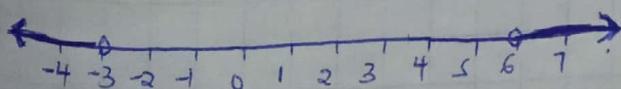
$$x - 6 > 0 \text{ for } x > 6$$

$$x + 3 = 0 \text{ for } x = -3$$

$$x + 3 < 0 \text{ for } x < -3$$

$$x + 3 > 0 \text{ for } x > -3$$

$$x < -3 \text{ or } x > 6$$

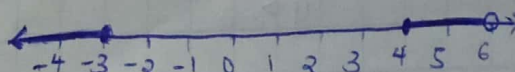


$$6. \frac{x^2 - x - 12}{x - 5} \leq 0$$

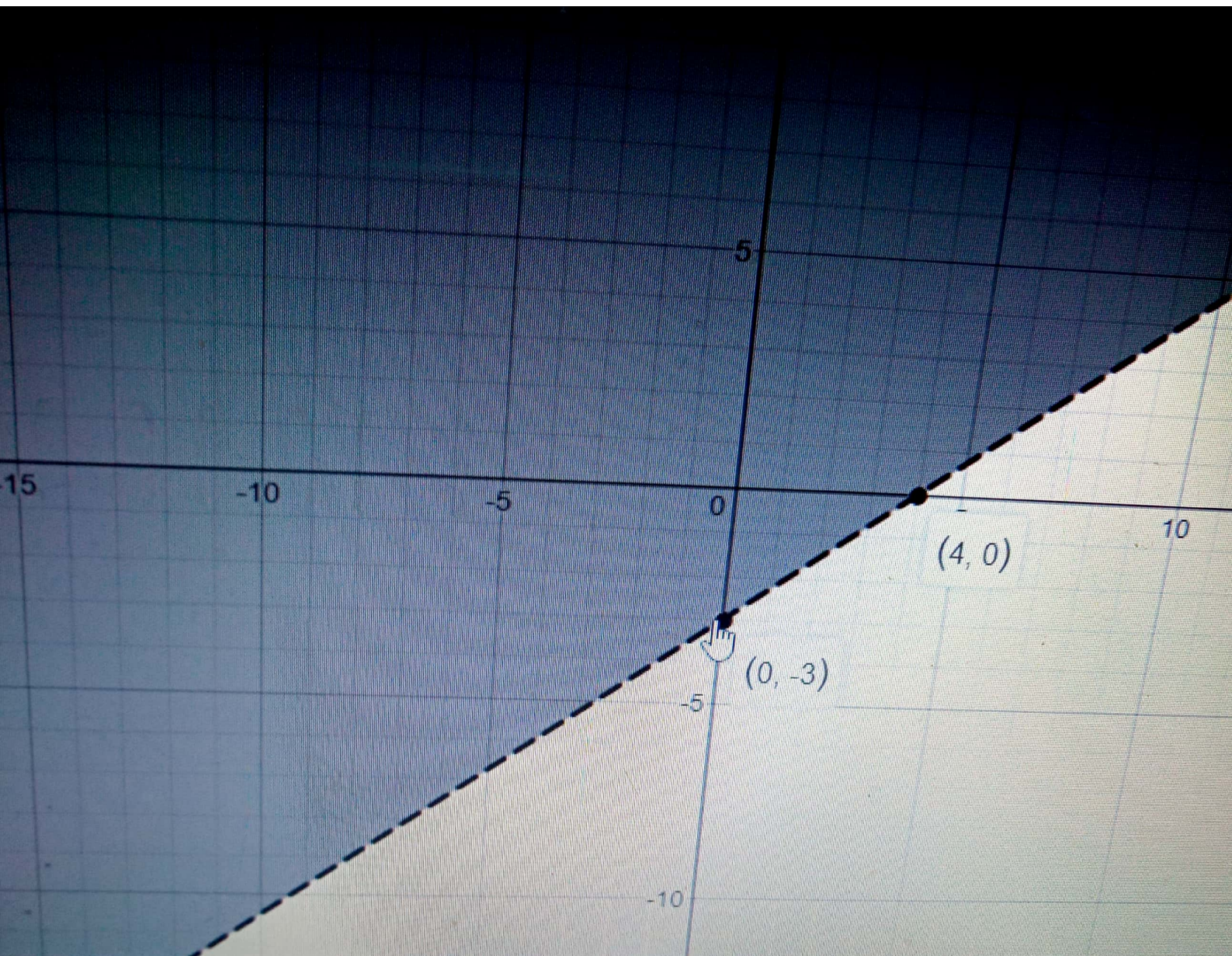
$$\frac{(x + 3)(x - 4)}{x - 5} \leq 0$$

$x + 3$	$x - 4$	$x - 5$
$= 0 \text{ for } x = -3$	$= 0 \text{ for } x = 4$	$= 0 \text{ for } x = 5$
$< 0 \text{ for } x < -3$	$< 0 \text{ for } x < 4$	$< 0 \text{ for } x < 5$
$> 0 \text{ for } x > -3$	$> 0 \text{ for } x > 4$	$> 0 \text{ for } x > 5$

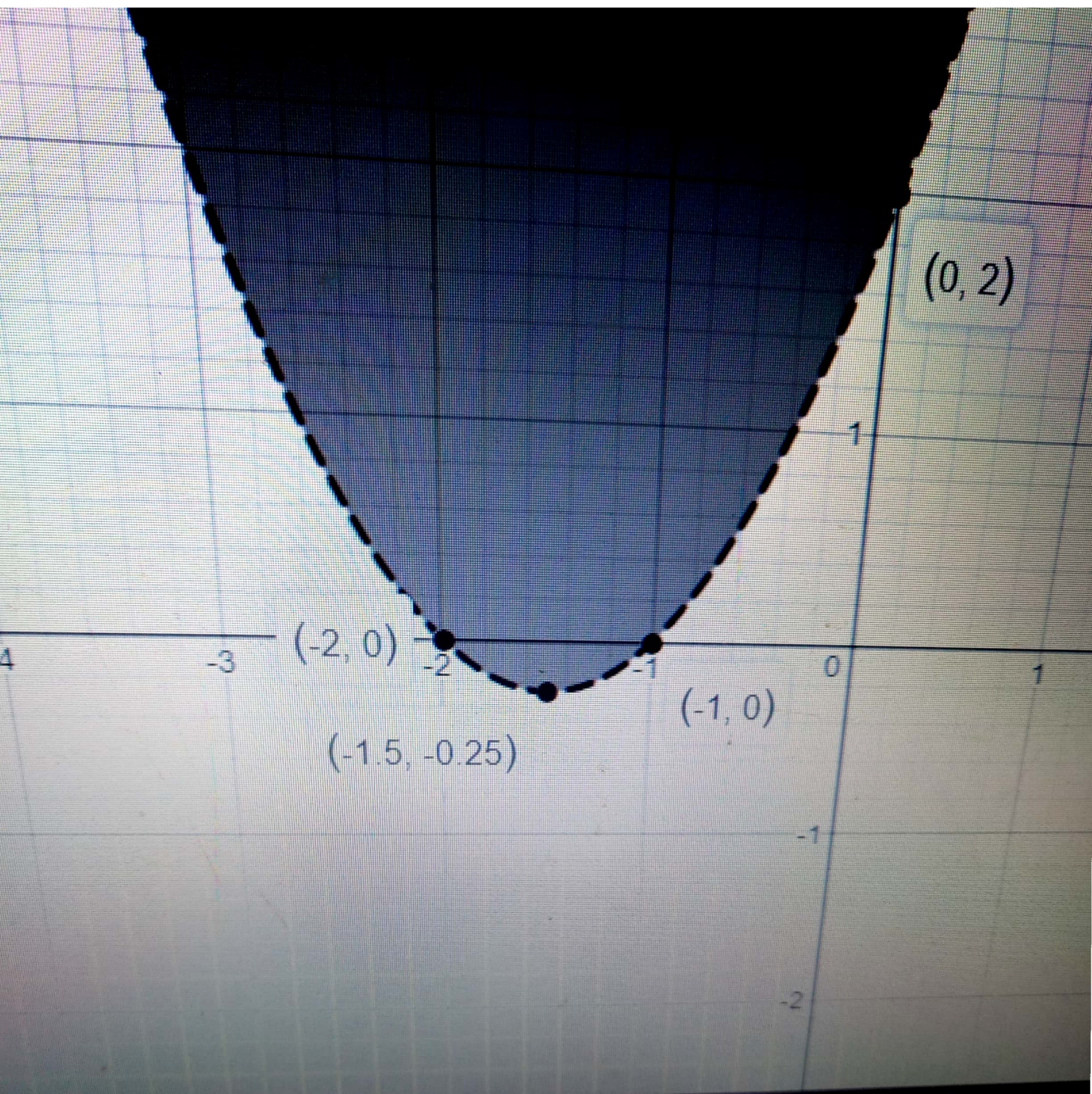
$$x \leq -3 \text{ or } 4 \leq x < 5$$



$$7 \quad 3x - 4y \leq 12$$



$$8. \quad y > x^2 + 3x + 2$$



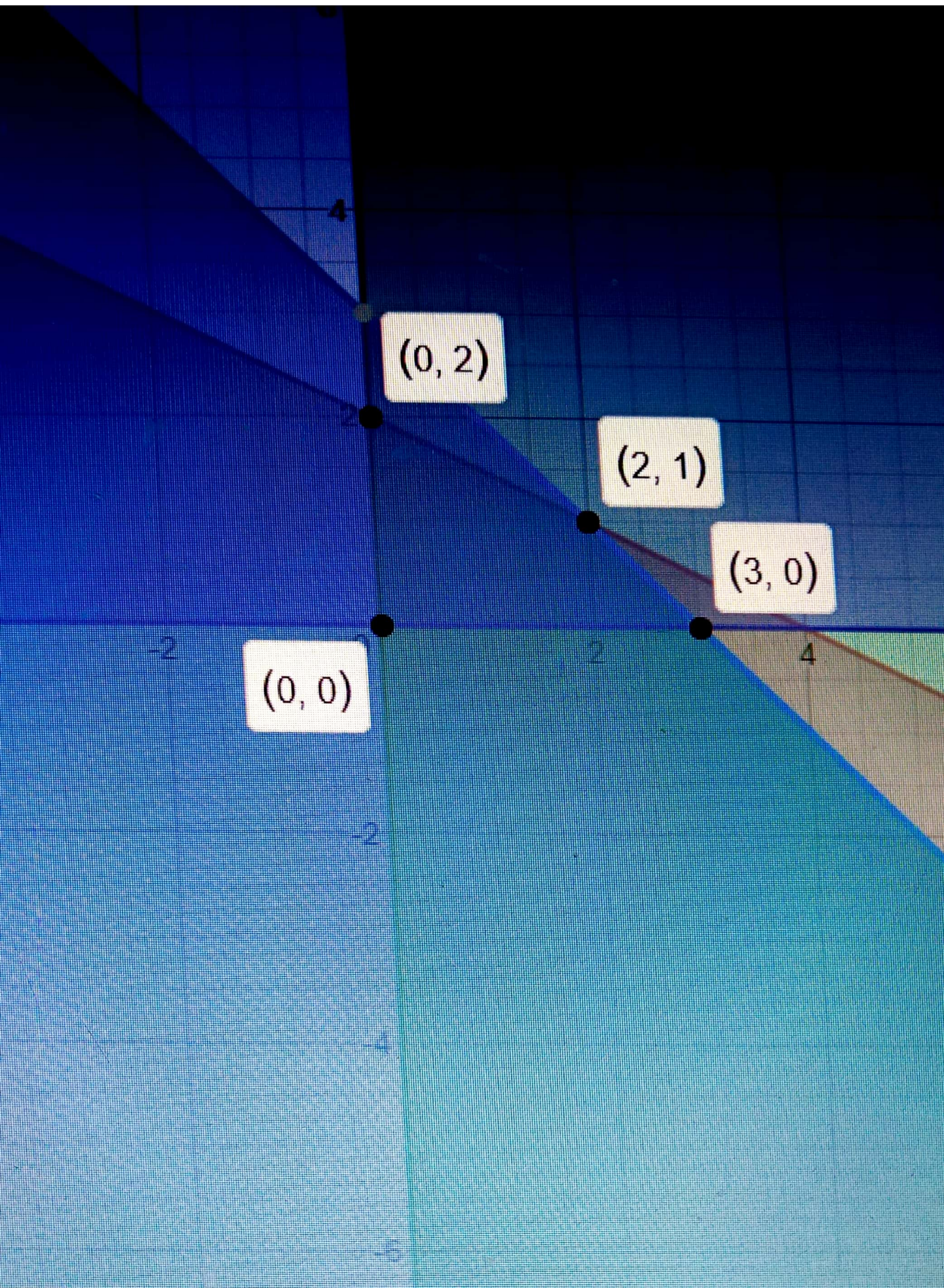
9. Maximize $A = 2x + 3y$

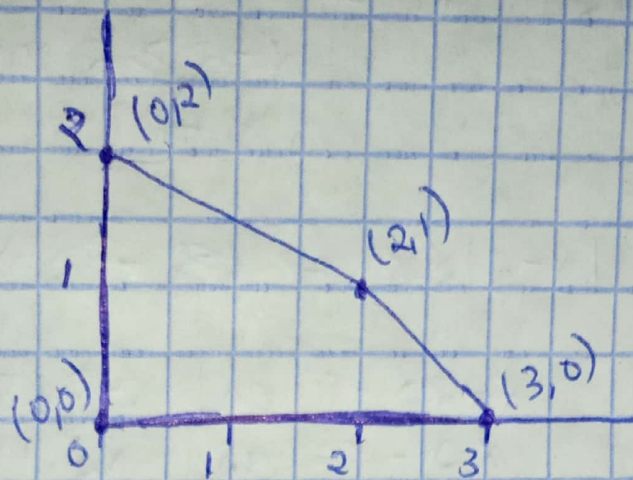
$$x + 2y \leq 4$$

$$x + y \leq 3$$

$$x \geq 0$$

$$y \geq 0$$





$$A = 2x + 3y$$

$$(0,0) \quad A = 2(0) + 3(0) = 0$$

$$(3,0) \quad A = 2(3) + 3(0) = 6$$

$$(0,2) \quad A = 2(0) + 3(2) = 6$$

$$(2,1) \quad A = 2(2) + 3(1) = 7$$

Maximum value is 7

10. Amount of raisins = x

Amount of oats $y = 2x$

$$x + y \geq 27$$

$$\text{Cost, } C = 250y + 350x \quad \text{Minimize}$$

$$x \geq 0$$

$$y \geq 0$$



$$C = 250y + 350x$$

$$(9, 18) \quad C = 250(18) + 350(9) = 7650$$

$$(27, 0) \quad C = 250(0) + 350(27) = 9450$$

To Minimize cost

Raisins = 9 tons

Oats = 18 tons