

Name: _____

Date: _____

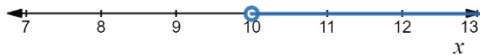
Learning Goal 0.2	Expectations for algebra from previous years.
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More Questions – Solutions

Example Solve the one – dimensional inequality.

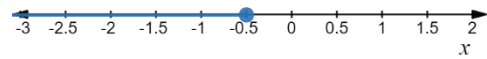
a. $5(7 - x) < -15$

$$\begin{aligned} 7 - x &< -3 \\ -x &< -10 \\ x &> 10 \end{aligned}$$



b. $2\left(-3x + \frac{3}{2}\right) \geq 6$

$$\begin{aligned} -3x + \frac{3}{2} &\geq 3 \\ -3x &\geq \frac{3}{2} \\ x &\leq -\frac{1}{2} \end{aligned}$$



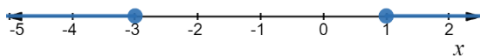
c. $3 - 2x - x^2 \leq 0$

$$\begin{aligned} x^2 + 2x - 3 &\geq 0 \\ (x + 3)(x - 1) &\geq 0 \end{aligned}$$

Boundary points

$$\begin{aligned} x + 3 = 0 & & x - 1 = 0 \\ x = -3 & & x = 1 \end{aligned}$$

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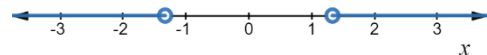
d. $9x^2 < 16$

$$\begin{aligned} x^2 &< \frac{16}{9} & 9x^2 - 16 &< 0 \\ x &< \pm \frac{4}{3} & (3x + 4)(3x - 4) &< 0 \end{aligned}$$

Boundary points

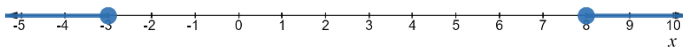
$$\begin{aligned} x = \frac{4}{3} & & x = \frac{4}{3} \end{aligned}$$

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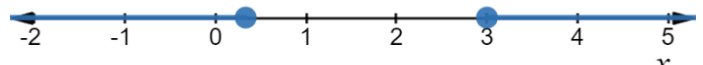
e. $|2x - 5| \geq 11$

$$\begin{aligned} 2x - 5 &\geq 11 & -(2x - 5) &\geq 11 \\ 2x &\geq 16 & 2x - 5 &\leq -11 \\ x &\geq 8 & 2x &\leq -6 \\ & & x &\leq -3 \end{aligned}$$



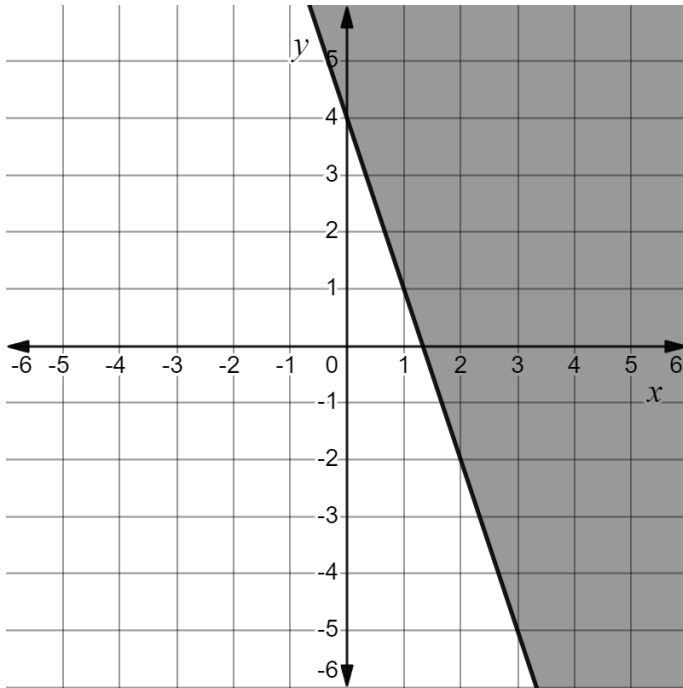
f. $|5 - 3x| < -4$

$$\begin{aligned} 5 - 3x &< -4 & -(5 - 3x) &< -4 \\ -3x &< -9 & 5 - 3x &> 4 \\ x &> 3 & -3x &> -1 \\ & & x &< \frac{1}{3} \end{aligned}$$

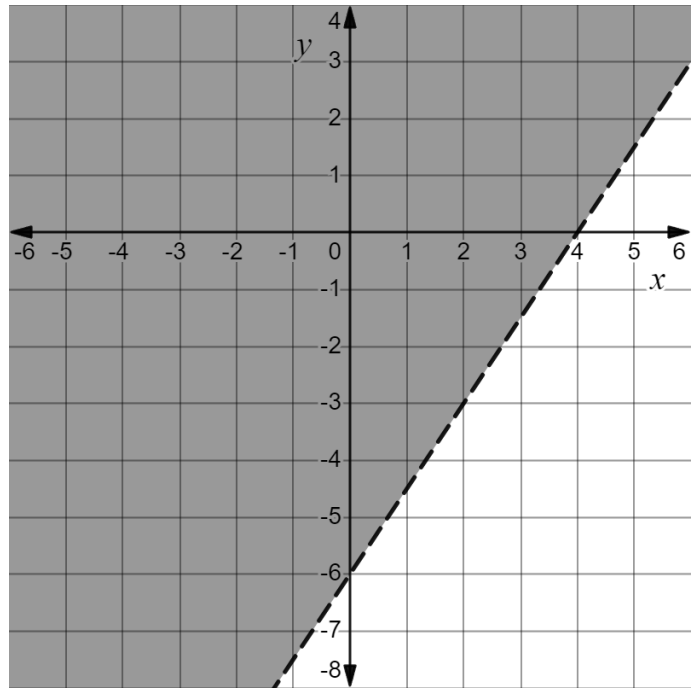


Example Solve the two – dimensional inequality.

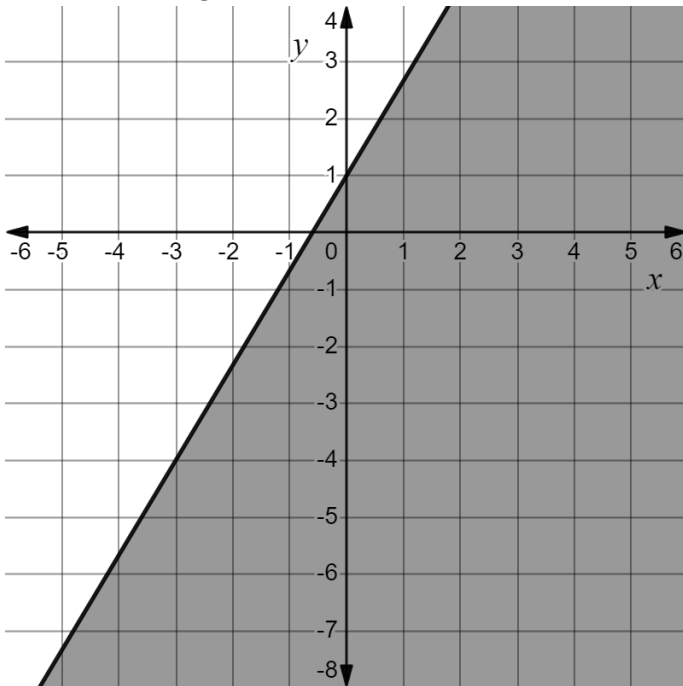
a. $y \geq -3x + 4$



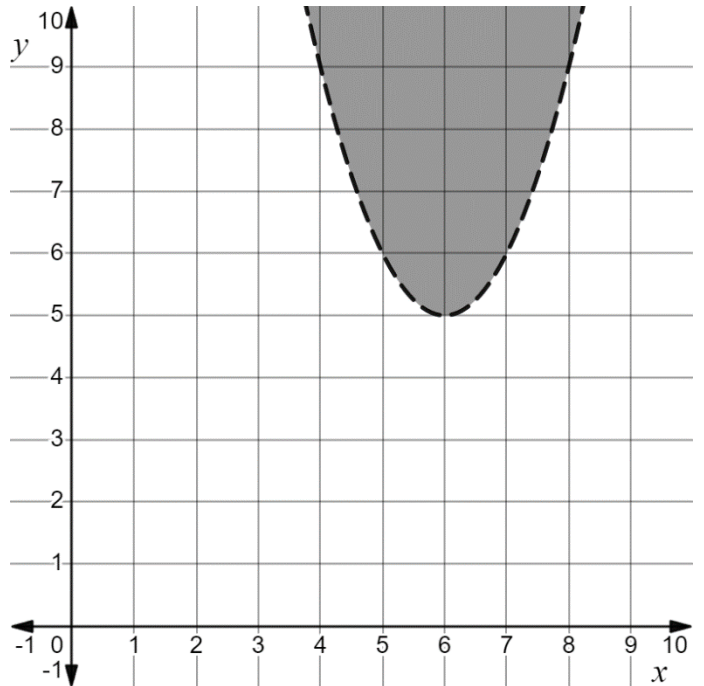
b. $3x - 2y < 12$



c. $y + 4 \leq \frac{5}{3}(x + 3)$



d. $y > (x - 6)^2 + 5$



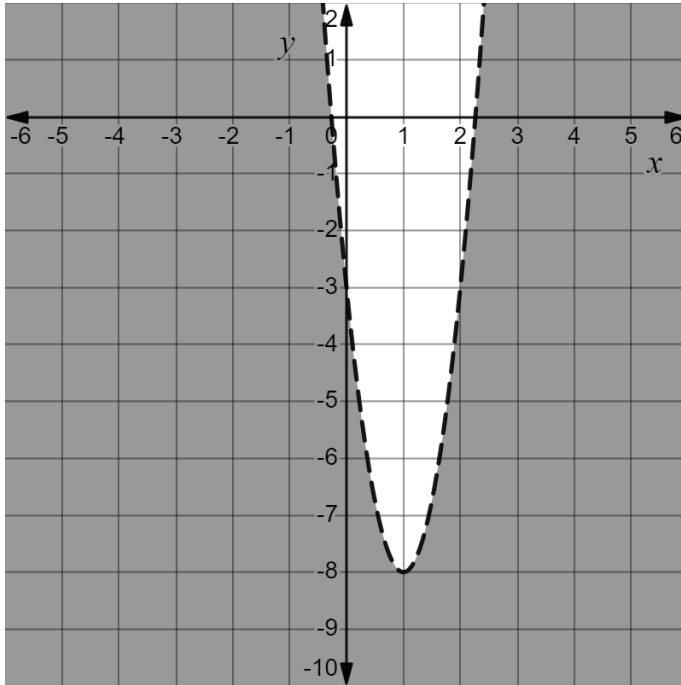
e. $y < 5x^2 - 10x - 3$

$$y < 5(x^2 - 2x) - 3$$

$$y < 5(x^2 - 2x + 1 - 1) - 3$$

$$y < 5(x^2 - 2x + 1) - 5 - 3$$

$$y < 5(x - 1)^2 - 8$$



f. $y \leq |6 - 2x|$

