Unit 7 Objective 1 Remediation

Graphing a Linear Inequality in Two Variables

Steps to Graph an Inequality

- Write the inequality in slope-intercept form (get y by itself)
- Graph the line $y = mx + b$ as a solid or dashed line
  - **Solid** if the inequality symbol is $\leq$ or $\geq$
  - Dashed if the inequality symbol is $<$ or $>$
- Pick a point to test that is **NOT** on the line
  - If the point creates a **true** statement, shade the side of the line where the point is located
  - If the point creates a **false** statement, shade the OTHER side of the line where the point is not

Example

Graph the solution of the inequality $5x + 2y < 6$.

- Change the inequality to slope-intercept form by solving the inequality for y
- Remember to switch the inequality sign if multiplying or dividing by a negative number

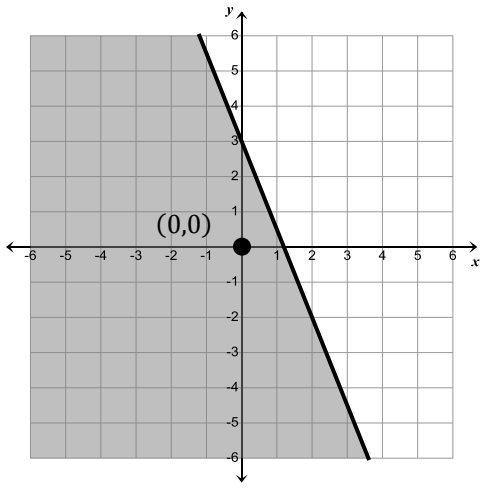
$$5x + 2y < 6$$
$$2y < -5x + 6$$
$$\frac{2y}{2} < \frac{-5x + 6}{2}$$
$$\boldsymbol{y < -\frac{5}{2}x + 3}$$

- Graph the line $y = -\frac{5}{2}x + 3$
- Draw a dashed line because the inequality sign is $<$

- Pick a point to test that is not on the line
- Pick $(0, 0)$ and substitute it into the original inequality

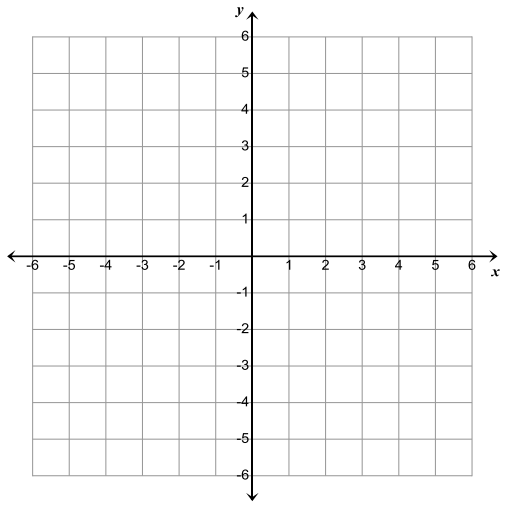
$$5(0) + 2(0) < 6$$
$$0 < 6$$

- This is true so shade the line of where $(0, 0)$ is located

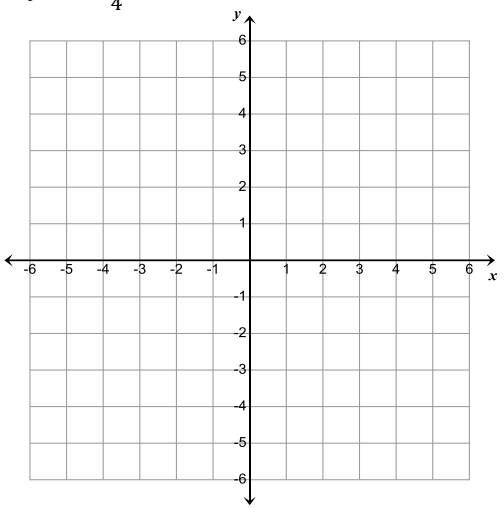


Graph the solution of the following inequalities.

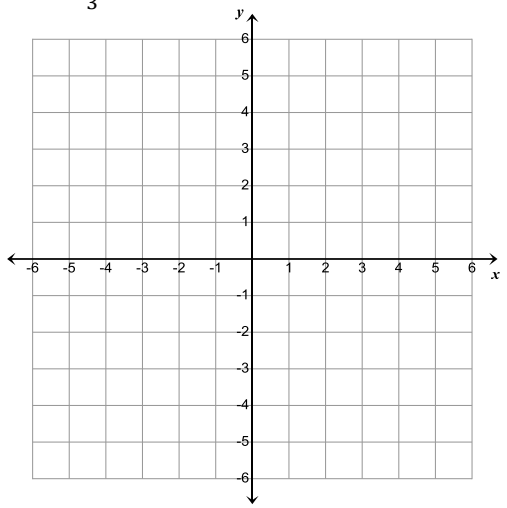
1. $y \leq x + 3$



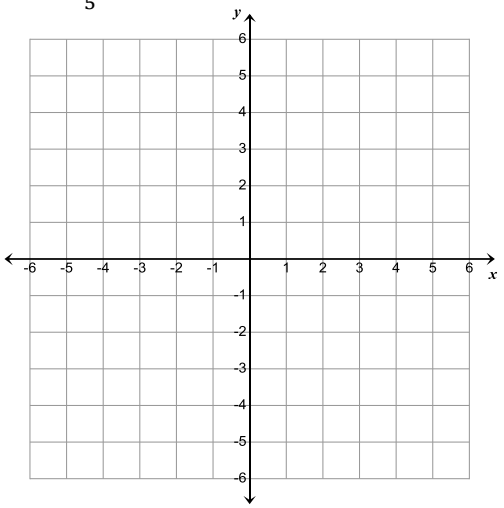
2. $y \geq -\frac{3}{4}x - 1$



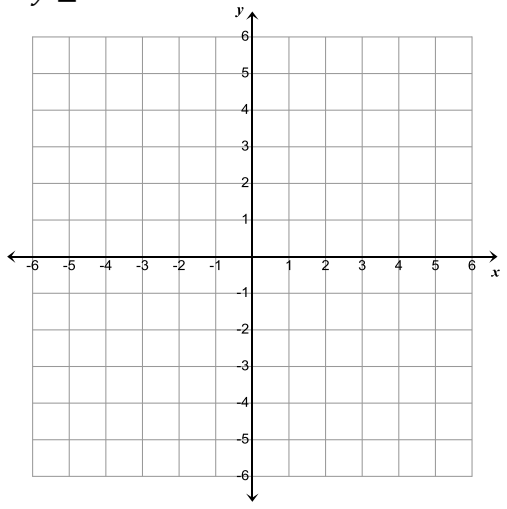
3. $y < \frac{2}{3}x + 2$



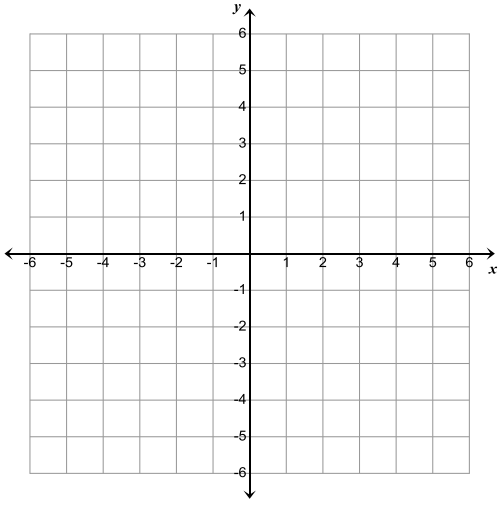
4. $y \leq \frac{2}{5}x$



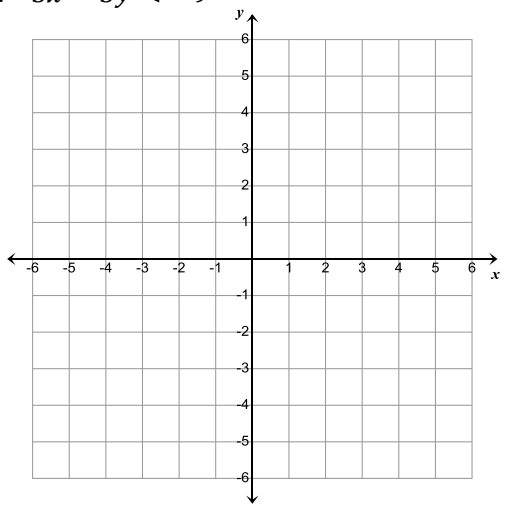
5. $y \leq 1$



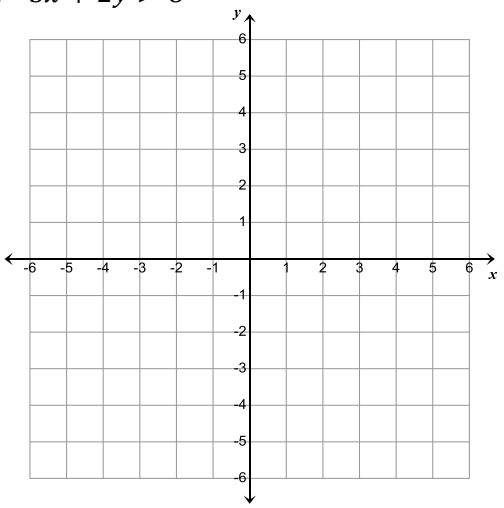
6. $3x < -6$



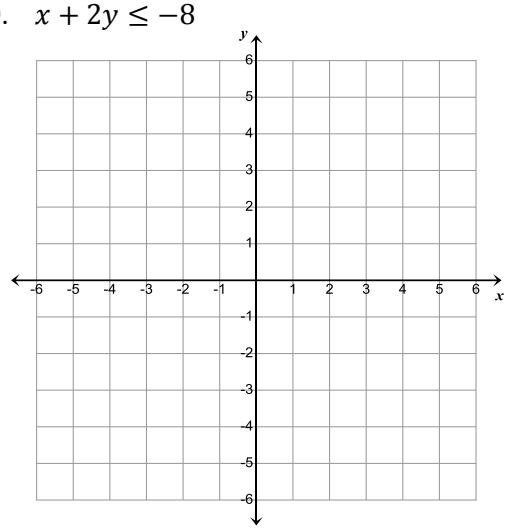
7. $5x - 3y < -9$



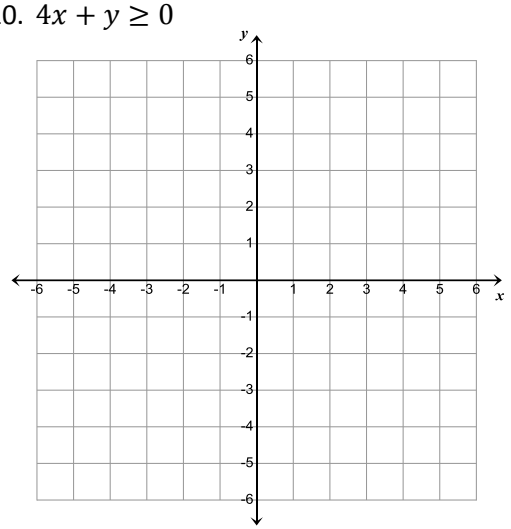
8. $3x + 2y > 8$



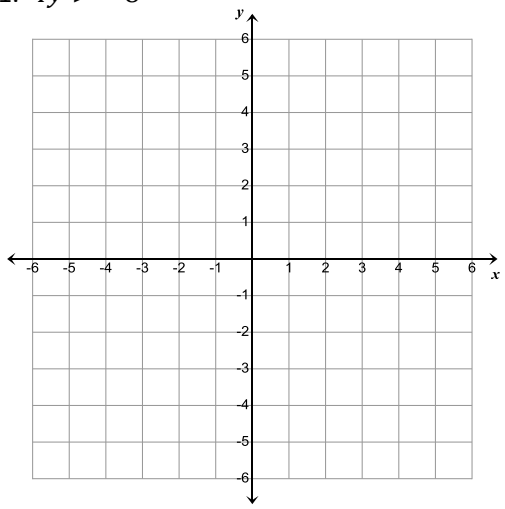
9. $x + 2y \leq -8$



10. $4x + y \geq 0$



11. $4y > -8$



12. $x \geq 3$