

4-5 Enrichment

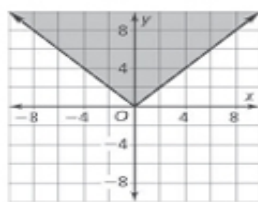
Linear Inequalities

Graphing Absolute Value Inequalities Graphing absolute value inequalities is similar to graphing linear inequalities, but the boundaries are absolute value graphs.

Problem

Graph $y \geq |x|$.

Graph the absolute value equation $y = |x|$ first. Use a solid line because the inequality symbol is \geq .



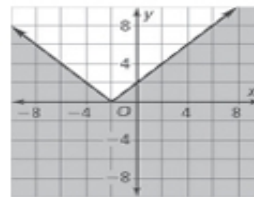
For the inequality part, the sign is \geq . Use an arbitrary point, such as $(0, 4)$ to decide where to shade. You cannot use $(0, 0)$ as this point lies on the boundary. Because $(0, 4)$ is a solution of the inequality, shade the portion above the absolute value graph.

Problem

Graph $y \leq |x + 2|$.

Graph the absolute value equation $y = |x + 2|$. Use a solid line because the inequality symbol is \leq .

Test $(0, 0)$ to decide where to shade. Because $(0, 0)$ is a solution of the inequality, shade the portion below the absolute value graph.



Exercises

Graph the following inequalities.

1. $y \geq |x - 3|$

2. $|2x + 5| \geq y$

3. $y < |x + 5|$