

Graphing Absolute Value

$$y = a|x-h| + k$$

Algorithm

1. Find the vertex (h,k)
2. Pick a convenient x to find another point
3. Use symmetry to find a third point

Example Graph $y = 2|x - 5| + 4$

1. The vertex is at $(+5, 4)$
2. Let $x = 0$, then $y = 14 \Rightarrow (0, 14)$
3. By symmetry, $(10, 14)$

Graph the following

1. $y = |x|$
2. $y = |x| - 1$
3. $y = |x| + 3$
4. $y = |x - 2|$
5. $y = |x + 4|$
6. $y = |x + 1| + 2$
7. $y = -|x - 2| + 3$
8. $y = 2|x - 4| + 1$
9. $y = -2|x - 4| + 1$
10. $y = 3|x - 1| - 2$
11. $y > |x + 3| + 2$
12. $y \leq -2|x| + 1$