

Absolute Value Functions

Date _____ Period _____

Without graphing, describe the transformations of the following functions.

1) $y = |x + 1| - 4$

2) $y = -|x| + 4$

3) $y = 3|x| + 4$

4) $y = -2|x - 1|$

5) $y = -2|x| - 1$

6) $y = -3|x - 3| + 2$

Write the equation for the function described.

7) An absolute value function that is transformed 7 units right.

8) An absolute value function that is stretched vertically by 2, transformed 2 units right, and 4 units down.

9) An absolute value function that is stretched vertically by 6, reflected across the x -axis, transformed 1 unit left, and 3 units up.

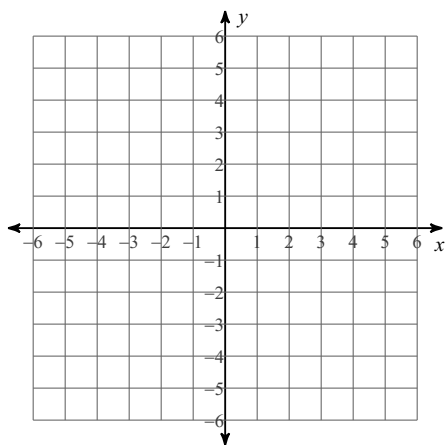
10) An absolute value function that is transformed 4 units left, and 1 unit down.

11) An absolute value function that is compressed vertically by $\frac{1}{2}$, reflected across the x -axis, transformed 3 units left, and 5 units up.

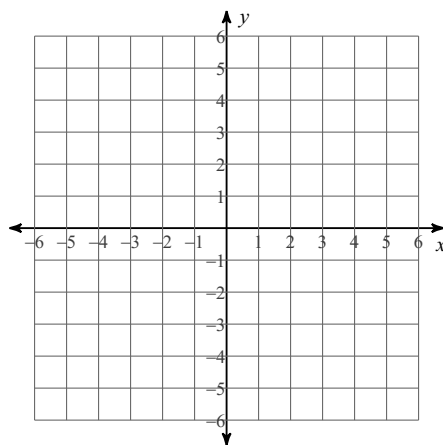
12) An absolute value function that is reflected across the x -axis, and transformed 9 units up.

Graph each absolute value function. List the VERTEX, DOMAIN and RANGE.

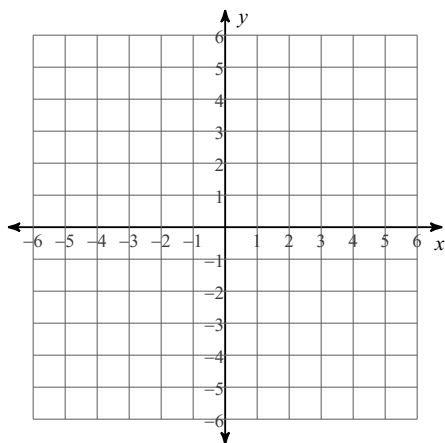
13) $y = -|x - 1| - 3$



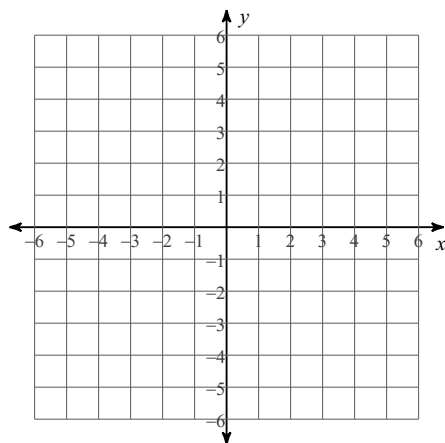
14) $y = |x + 4|$



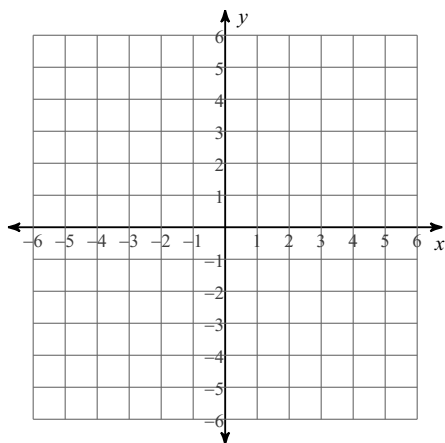
$$15) y = -|x - 2| + 4$$



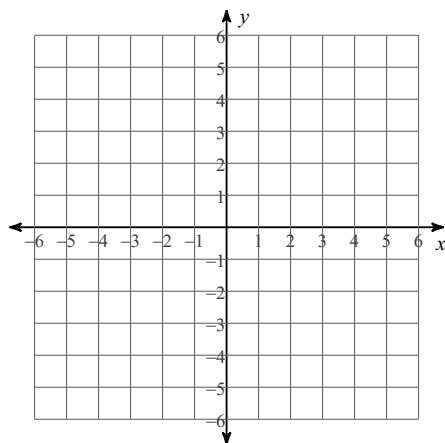
$$16) y = -2|x - 4| + 2$$



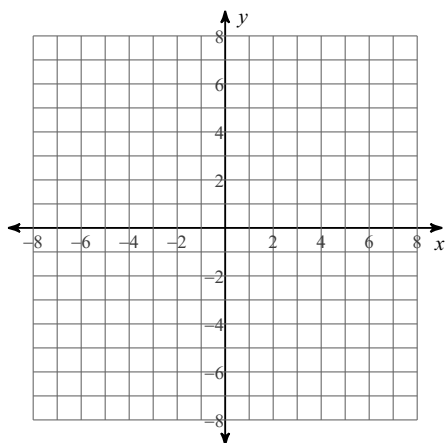
$$17) y = 2|x - 2|$$



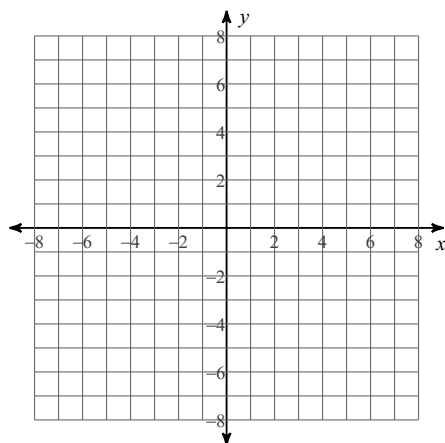
$$18) y = 3|x + 3| - 2$$



$$19) y = \frac{1}{2} \cdot |x + 3| - 2$$

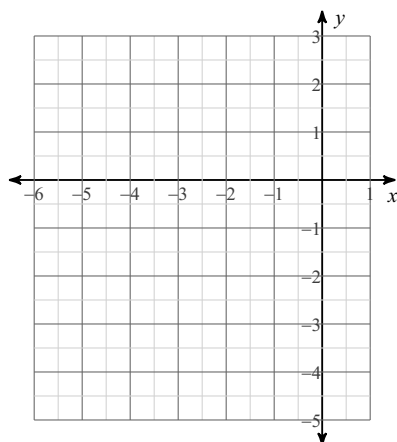


$$20) y = -\frac{3}{4} \cdot |x| + 2$$

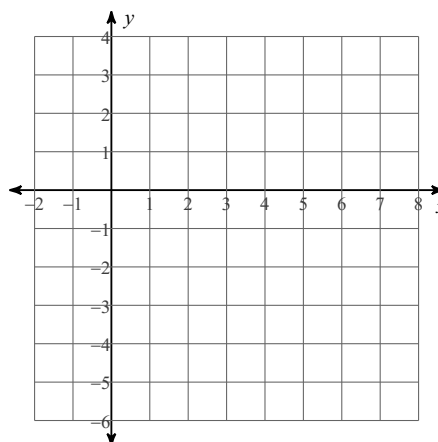


Graph each quadratic function. List the VERTEX, DOMAIN and RANGE.

21) $y = (x + 4)^2 - 3$



22) $y = -2(x - 3)^2 + 3$



Find the x -intercepts by factoring.

23) $y = x^2 + 8x + 16$

24) $y = x^2 - 4x + 3$

Factor each completely.

25) $3r^2 + 15r$

26) $-2b^2 - 6b$

27) $-b^2 + 10b - 21$

28) $4x^2 + 40x + 36$

29) $x^2 + 10x + 25$

30) $6k^2 + 6k$