

Day 3: Graphing Absolute Value

Date _____

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Absolute Value Functions

- 1) Before we can graph an Absolute Value Function, we need to remember what it is that an absolute value does to a number.

An absolute value _____.

2) $|-25| =$

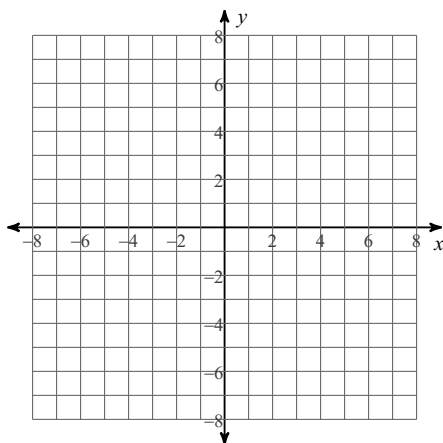
3) $|182| =$

4) $|17| =$

5) $|-907| =$

Graphing an Absolute Value Function

6) $y = |x|$



- 7) Let's review our transformations as they look with absolute value.

(Hint: The absolute value sign is a grouping symbol LIKE PARANTHESIS.)

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

a : _____

h : _____

k : _____

Without graphing, describe the transformations of the following functions.

8) $y = |x + 2| + 1$

9) $y = |x| - 1$

10) $y = -2|x - 1| + 3$

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

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

13) $y = -2|x + 3| + 1$

Write the equation for function with the given information.

14) An absolute value function that is transformed 3 units left, and 5 units down.

15) An absolute value function that is transformed 5 units left, and 2 units down.

16) An absolute value function that is stretched vertically by 4, transformed 7 units right, and 1 unit up.

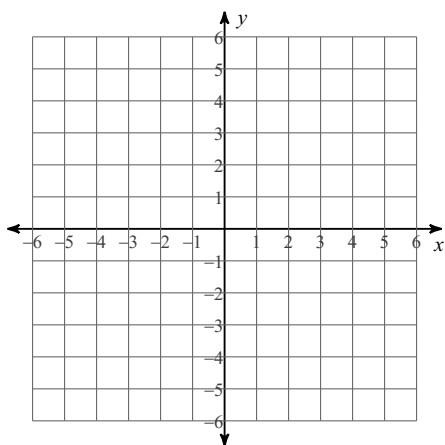
17) An absolute value function that is compressed vertically by $\frac{3}{4}$, transformed 1 unit right, and 4 units up.

18) An absolute value function that is compressed vertically by $\frac{3}{7}$, and transformed 2 units down.

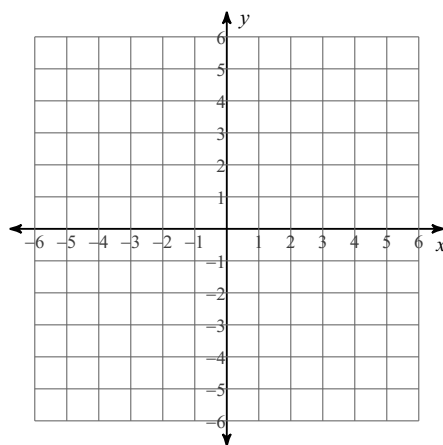
19) An absolute value function that is stretched vertically by 3, and transformed 3 units left.

Graph each equation. STATE the VERTEX, DOMAIN and RANGE.

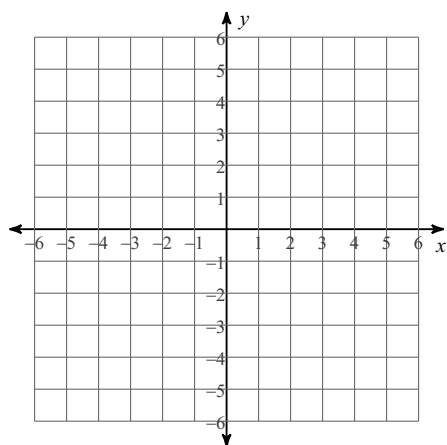
20) $y = |x + 3| + 1$



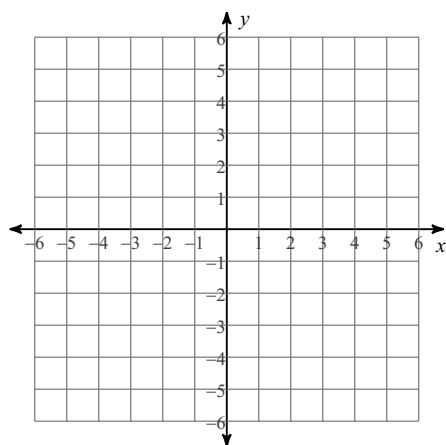
21) $y = -|x - 1| - 2$



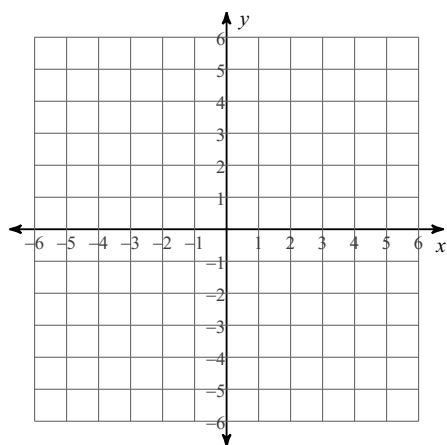
$$22) y = -|x| + 3$$



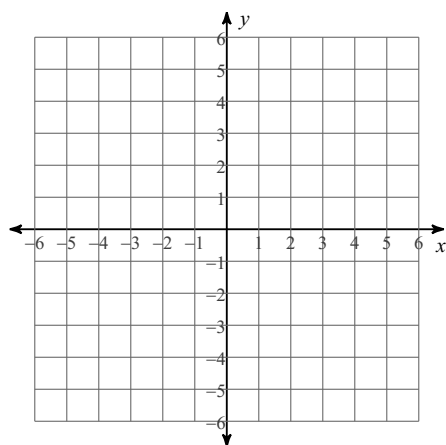
$$23) y = |x - 1| - 4$$



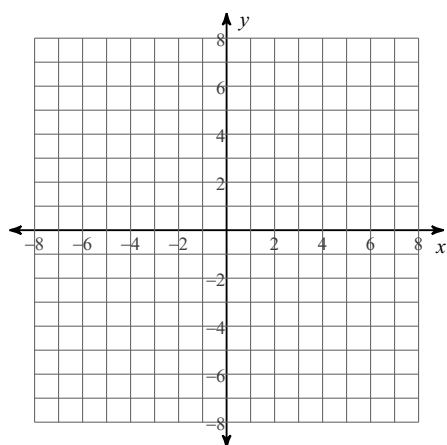
$$24) y = 2|x| - 3$$



$$25) y = -3|x - 4| + 3$$



$$26) y = \frac{2}{3} \cdot |x - 4| - 5$$



$$27) y = -\frac{5}{2} \cdot |x + 1| + 3$$

