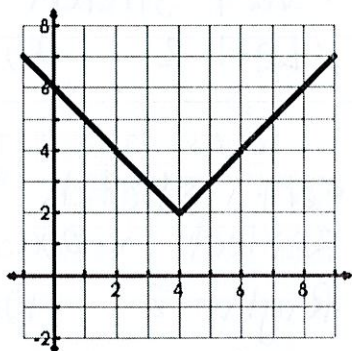


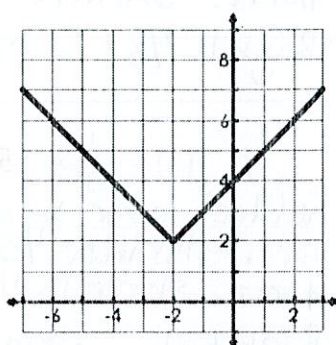
Name: _____ Date: _____

Write the equation for the absolute value graphs.

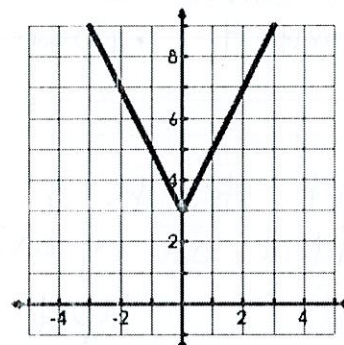
1. $f(x) = |x-4| + 2$



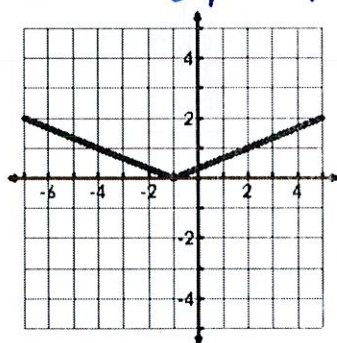
2. $f(x) = |x+2| + 2$



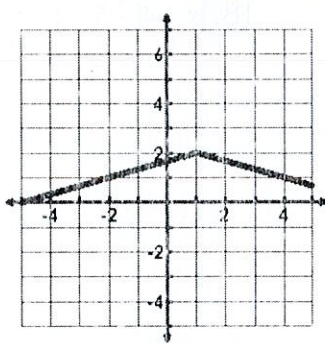
3. $f(x) = 2|x| + 3$



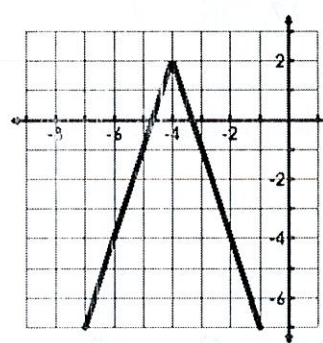
4. $f(x) = \frac{1}{3}|x+1|$



5. $f(x) = -\frac{1}{3}|x-1| + 2$



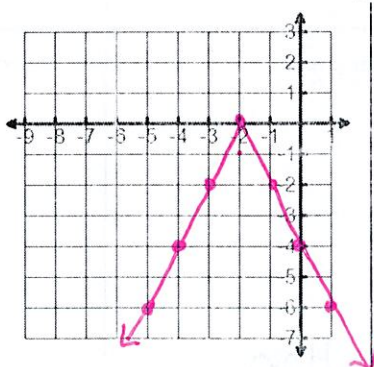
6. $f(x) = -3|x+4| + 2$



Graph the absolute value function. State the vertex and the "a" value.

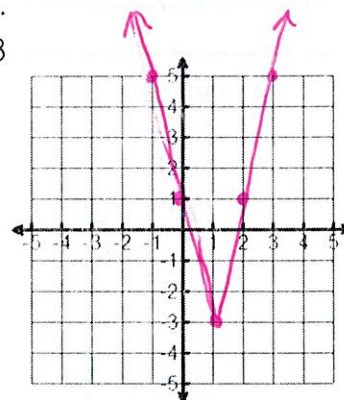
7. $f(x) = -|2x+4|$

$V: (-2, 0)$
 $a = -1$
 $b = \frac{1}{2}$



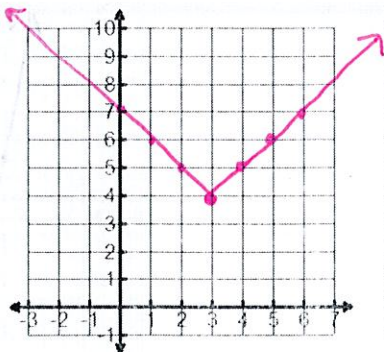
8. $f(x) = 4|x-1| - 3$

$V: (1, -3)$
 $a = 4$



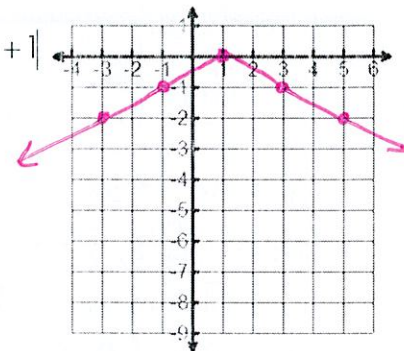
9. $f(x) = |x-3| + 4$

$V: (3, 4)$
 $a = 1$



10. $f(x) = -\frac{1}{2}|x+1|$

$V: (1, 0)$
 $a = -\frac{1}{2}$



Describe the transformations.

11. $f(x) = -3|x - 4| - 10$

- Reflect over x-axis
- Vert. stretch 3
- Right 4
- Down 10

12. $f(x) = |-3x + 2| - 3$

- Reflect over y-axis
- Horiz. shrink $\frac{1}{3}$
- Right $\frac{2}{3}$
- Down 3

13. $f(x) = -7|x + 2| + 5$

- Reflect over x-axis
- Vert. stretch 7
- Left 2
- Up 5

14. $f(x) = 3|-x - 2| + 1$

- Vert. stretch 3
- Reflect over y-axis
- Left 2
- Up 1

15. $f(x) = -\frac{1}{3}|5x - 3| - 4$

- Reflect over x-axis
- Vert. shrink $\frac{1}{3}$
- Horiz. shrink $\frac{1}{5}$
- Right 1
- Down 4

16. $f(x) = 3|-x + 2| - 1$

- Vert. stretch 3
- Reflect y-axis
- Right 2
- Down 1

Solve the following equations for x.

17. $-2|x| = -4$

$x = 2, -2$

18. $|x - 4| - 5 = 1$

$x = 10, -2$

19. $-\frac{1}{3}|x - 2| + 1 = 10$

No Solution

20. $2|x + 1| + 1 = 1$

$x = -1$

21. $-3|x + 5| + 2 = 5$

No Solution

22. $|x + 3| = 7x$

$x = \frac{1}{2}$

23. $f(x) = \begin{cases} 2x^2, & x < 2 \\ |x - 4|, & x \geq 2 \end{cases}$

Domain: $(-\infty, \infty)$

Range: $[0, \infty)$

Pt. of Discontinuity: $x = 2$

Increasing: $(0, 2) \cup (4, \infty)$

