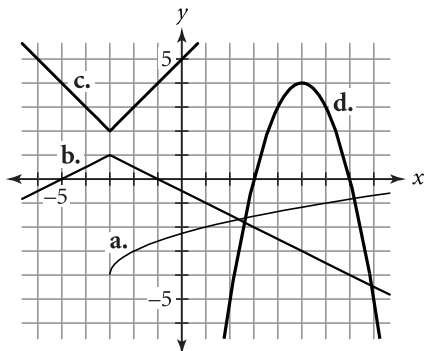


Lesson 4.6 • Stretches and Shrinks and the Absolute-Value Family

Name _____ Period _____ Date _____

1. Each graph is a transformation of one of the parent functions you've studied. Write an equation for each graph.



2. Describe the transformations of the graph of $y = |x|$ needed to produce the graph of each equation.

a. $y = |x - 3|$

b. $y = -|x|$

c. $y = |-x|$

d. $y = \left|\frac{x}{4}\right|$

e. $y = 3|x|$

f. $y = |3x|$

g. $y = -|x| + 5$

h. $y = |x + 2| - 1$

i. $y = 1.5\left|\frac{x}{2}\right|$

j. $\frac{y}{0.5} = -|x|$

k. $y = -3|x + 4| + 6$

l. $\frac{y}{2} = |x - 1| - 2$

3. Find the vertex of the graph of each equation in Exercise 2 and sketch the graph.

4. Solve.

a. $|x| = 9$

b. $|x + 2| = 5$

c. $|x - 5| - 7 = 0$

d. $|x + 2| + 5 = 4$

e. $3|x - 5| - 2 = 10$

f. $\left|\frac{x}{2}\right| + 5 = 12$

5. Solve each equation for y .

a. $\frac{y}{2} = \left|\frac{x}{4}\right|$

b. $y - 2 = -4(x + 1)^2$

c. $\frac{y}{-3} = \sqrt{x} + 1.5$

d. $\frac{y - 3}{2} = (x + 1)^2$

e. $\frac{y + 1}{-3} = \sqrt{x + 2}$

f. $\frac{y - 5}{3} = \left|\frac{x + 2}{4}\right|$