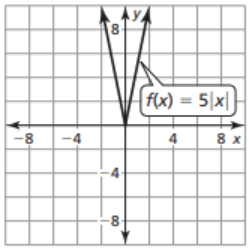
Math 3 Worksheet- Section 2.2 Name:_____ Period:_____

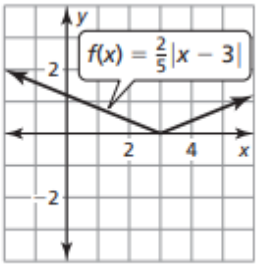
Graphing Absolute Value and Describing Transformations

Identify the function family to which *f* belongs. Compare the graph of *f* to the graph of its parent function.

1.

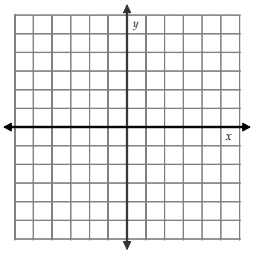


2.

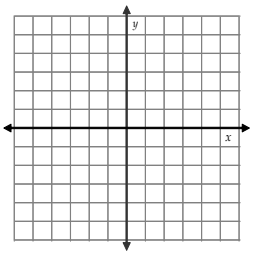


Graph the function and its parent function. Then describe the transformation.

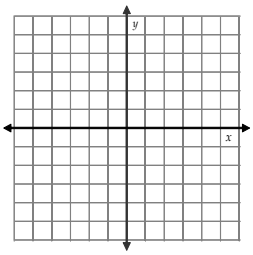
3. $h(x) = |x + 5|$



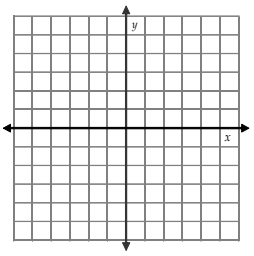
4. $n(x) = -2|x|$



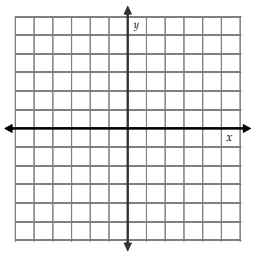
5. $m(x) = |3x|$



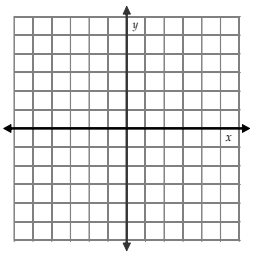
6. $g(x) = \frac{1}{2}|x| - 6$



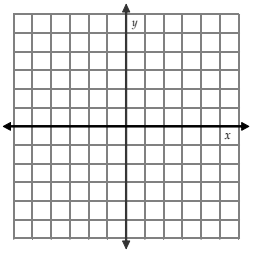
7. $l(x) = |x - 2| + 3$



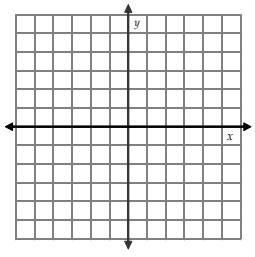
8. $n(x) = 3|x| - 4$



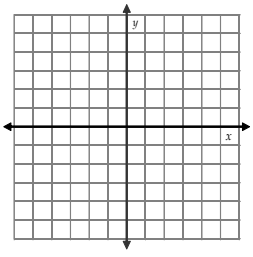
9. $p(x) = |-x + 4|$



10. $z(x) = \frac{1}{2}|x - 1| - 3$



9. $k(x) = |-x + 2| + 1$



Write a function *g* whose graph represents the indicated transformation of the <u>parent</u> function $f(x) = |x|$.

10. reflection in the x-axis

11. reflection in the y-axis

12. vertical stretch by a factor of 2

13. horizontal stretch by a factor of 3

14. vertical shrink by a factor of $\frac{1}{3}$

15. horizontal shrink by a factor of $\frac{1}{4}$

Write a function *g* whose graph represents the indicated transformation of the function *f* given.

16. $f(x) = -5|x| + 2$; reflection in the x-axis

17. $f(x) = |6x| - 2$; reflection in the y-axis

18. $f(x) = |x| + 2$; vertical stretch by a factor of 5

19. $f(x) = |x + 3|$; horizontal stretch by a factor of 4

20. $f(x) = 2|x| + 6$; vertical shrink by a factor of $\frac{1}{2}$

21. $f(x) = |2x| + 4$; horizontal shrink by a factor of $\frac{1}{2}$