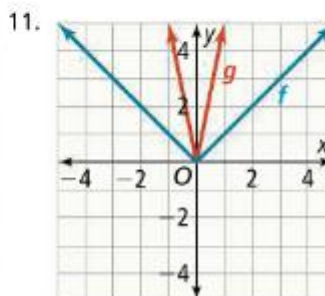
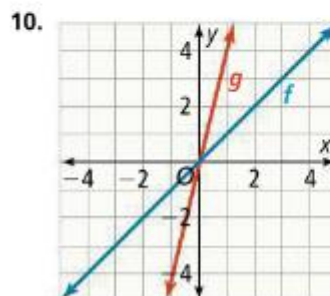
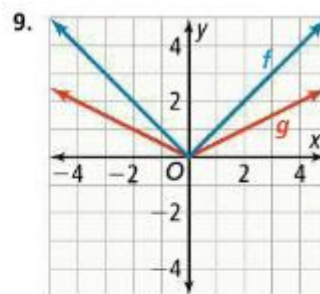
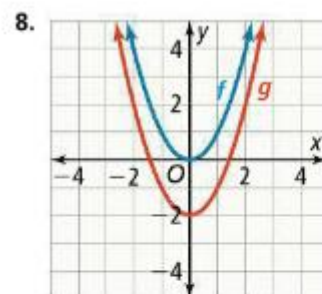
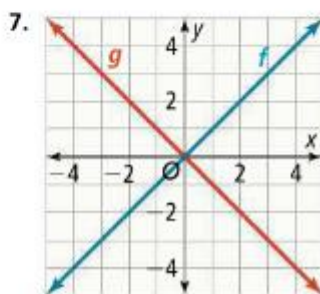
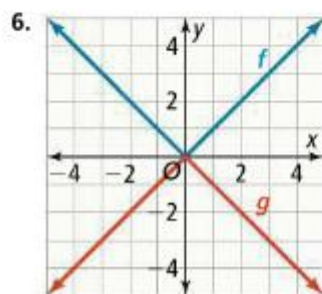
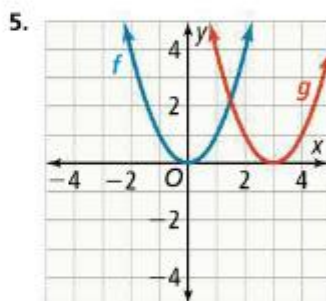
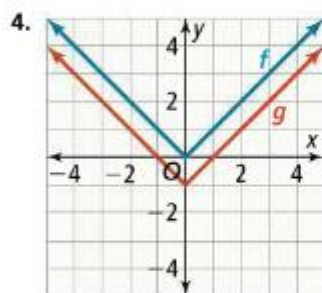


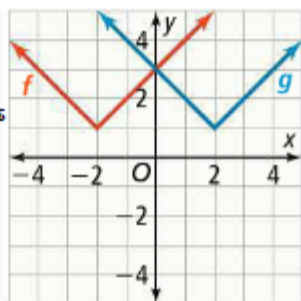
1-2 Exercises Key

1. From the equations, you can see whether the graph of the parent function will be shifted up or down, reflected over an axis, or stretched or compressed to create the graph of the new function.
2. $g(x) = f(x) + k$ is a vertical translation k units, so the output of the function is affected. $g(x) = f(x - h)$ is a horizontal translation h units, so the input of the function is affected.
3. $g(x)$ is a horizontal translation of $f(x)$ left 1 unit, not right 1 unit, because $h < 0$.



12. Vertical and horizontal translations and reflections do not change the shape of a graph. Stretches and compressions change the shape of a graph because they affect the steepness of the graph.

14. The student reflected the graph of $f(x)$ across the x -axis instead of reflecting the graph across the y -axis.



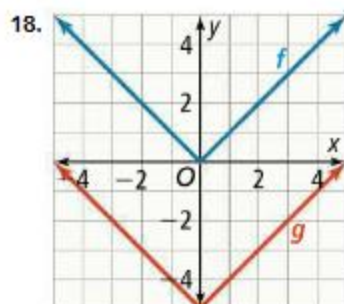
15. Multiplying the y -values of the points on the graph of f by 4 results in points on the graph of g . So, $g(x)$ is a vertical stretch of $f(x)$ by a scale factor of 4 and can be written as $g(x) = 4|x|$. Dividing the x -values of the points on the graph of f also results

in points on the graph of g . So $g(x)$ is a horizontal compression of $f(x)$ by a scale factor of 4 and can be written as $g(x) = |4x|$. A vertical stretch is the same as a horizontal compression in this case.

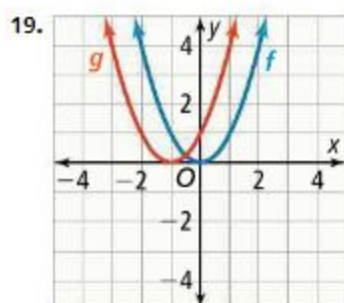
16. $g(x) = f(-x) = (-x)^2 = (x)^2$; The graph of $g(x)$ is the same as the graph of $f(x)$.

17. $g(x) = |2x - 4|$ is equivalent to $g(x) = 2|x - 2|$. So, $g(x)$ is a horizontal translation of $f(x)$ right 2 units and a vertical stretch of $f(x)$ by a factor of 2.

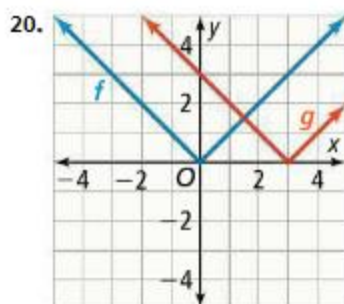
24–32. See back of book.



The domain values of f and g are the same, but the range values of g are 5 units less than the range values of f .

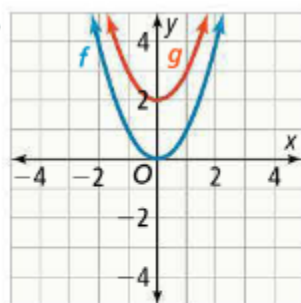


The range values of f and g are the same, but the domain values of g are 1 unit less than the domain values of f at corresponding range values.

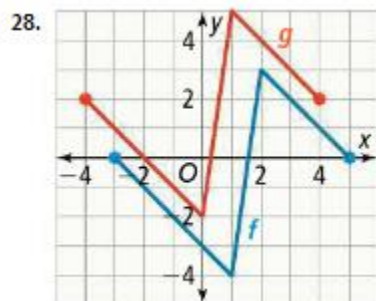
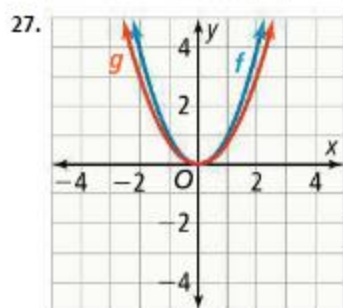
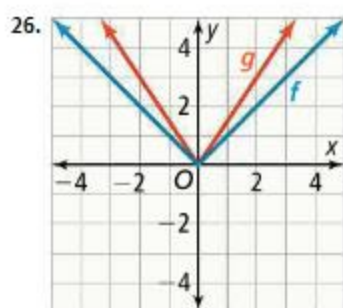
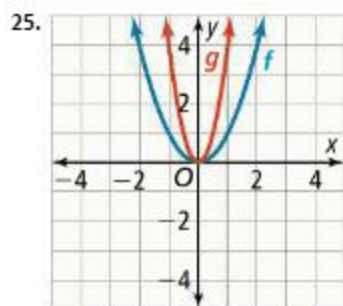
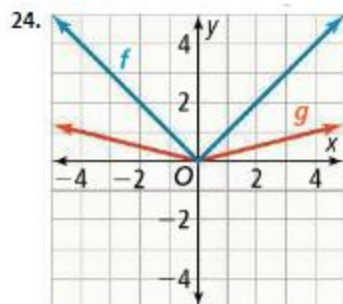


The range values of f and g are the same, but the domain values of g are 3 units greater than the domain values of f at corresponding range values.

21.

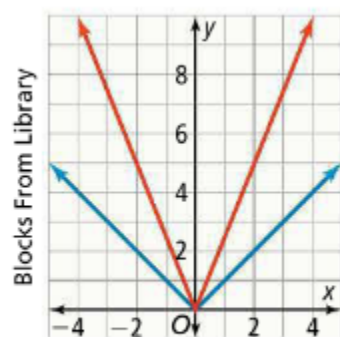


The domain values of f and g are the same, but the range values of g are 2 units greater than the range values of f .



29. translation left 1 unit and then vertical stretch by a factor of 2
30. translation right 3 units and then translation up 5 units
31. reflection across the x -axis and then translation down 6 units
32. translation right 7 units, translation down 9 units, and then vertical stretch by a factor of 4
34. a. $f(x) = |x|$
b. $g(x) = 2.5|x|$

c.



Minutes Before Passing Library Minutes After Passing Library

35. $y = -(x - 1)^2 + 1; (1, 1)$

38. Part A $g(x) = -1.22|x - 17.7| + 21.6$

Part B domain: $0 \leq x \leq 35.4$; range: $0 \leq y \leq 21.6$; The domain represents the width of the pyramid, which is 35.4 m wide. The range represents the height of the pyramid, which is 21.6 m high.