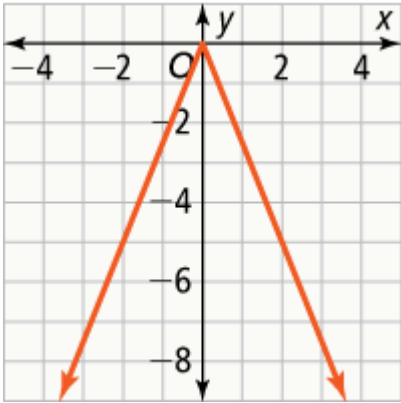
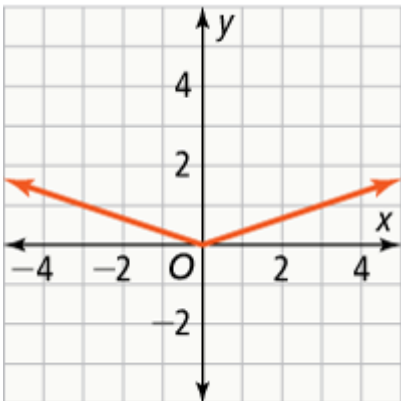


9.



Domain: all real numbers;
Range: $y \leq 0$

10.



Domain: all real numbers;
Range: $y \leq 0$

11. (0, 0); maximum

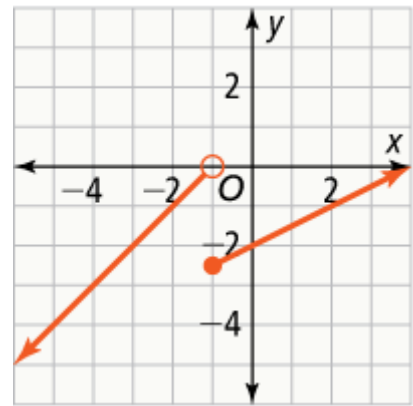
12. (0, 0); minimum

13. Domain: all real numbers;
Range: $y \leq 0$; Vertex: (0, 3)

14.
$$f(x) = \begin{cases} 4x, & x \geq 0 \\ -4x, & x < 0 \end{cases}$$

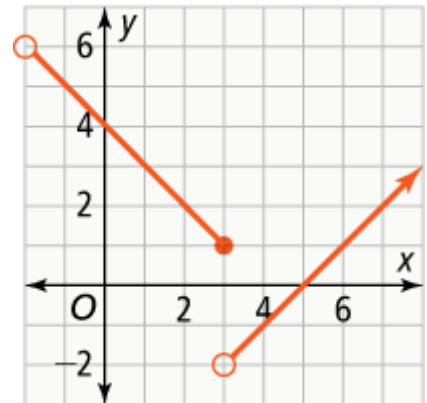
15.
$$f(x) = \begin{cases} -2x, & x \geq 0 \\ 2x, & x < 0 \end{cases}$$

16.



The graph is increasing on the interval $x < -1$ and increasing on the interval $x \geq -1$.

17.



The graph is increasing on the interval $x > 3$ and decreasing on the interval $-2 < x \leq 3$.

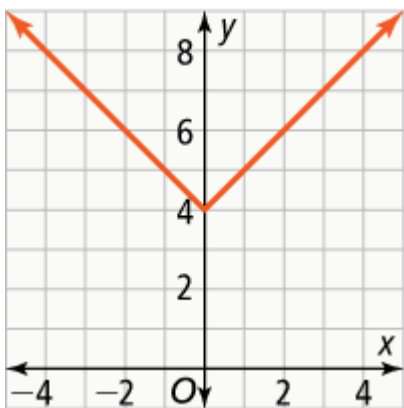
18. The student reversed the signs of the function for each piece and did not include the point $x = 0$ in the domain.

$$f(x) = \begin{cases} 5x, & x < 0 \\ -5x, & x \geq 0 \end{cases}$$

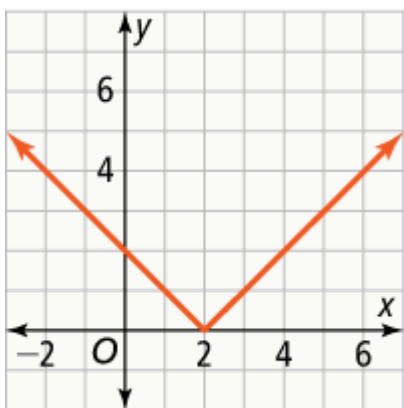
20.

$$f(x) = \begin{cases} 35x + 5, & 0 \leq x \leq 10 \\ 30x, & x > 10 \end{cases}$$

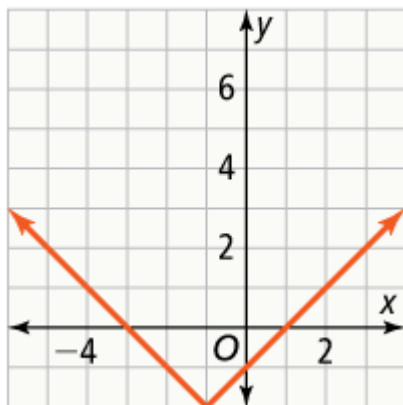
30. (0, 4)



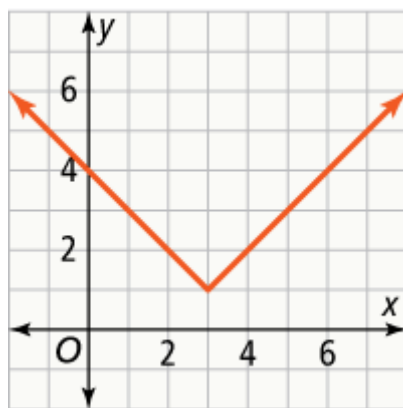
31. (2, 0)



32. (-1, -2)



33. (3, 1)



34. The graph of g is a vertical stretch of the graph of f by a factor of 2 and translated 6 units left and 1 unit down.

35. The graph of g is a reflection across the x -axis of the graph of f , translated 2 units right and 1 unit down.

36. The graph of g is a vertical compression of the graph of f by a factor of 0.5, reflected across the x -axis and translated 4 units up.

37. The graph of g is a vertical stretch of the graph of f by a factor of $\frac{3}{2}$, translated 1 unit right and 8 units up.

38. $g(x) = -0.5|x + 3| - 2$

39. $g(x) = 3|x - 4| + 3$

41. $g(x) = |x - 5| + 4$

42. $g(x) = |x + 3| + 3$