

Quiz - Transformation solutions

1. a) $y = \sqrt{x}$

b) The graph was: ① reflected over x-axis
② vertically shifted up two units

c) $f(x) = -\sqrt{x} + 2$

d) $\{x | x \geq 0\}, \{y | y \leq 2\}$

② a) $y = \sqrt[3]{x}$

b) The graph was ① vertically stretched by a factor of 4
② horizontally shifted right one unit

c) $y = 4\sqrt[3]{x-1}$

d) $\{x | x \in \mathbb{R}\}, \{y | y \in \mathbb{R}\}$

③ a) $\{x | x \neq 6\}, \{y | y \neq 2\}$

b) Decreasing: $(-\infty, 6)$ and $(6, \infty)$

④ a) $\{x | x \leq 4 \text{ or } x \geq 4\}, \{y | y \leq 3\}$

b) Increasing: $(-\infty, -4)$ Decreasing: $(4, \infty)$

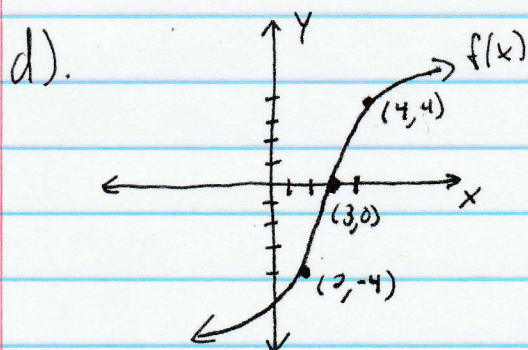
⑤ a) ① reflection over x-axis ② horizontally stretched by a factor of $\frac{3}{2}$ ③ vertically shifted down by one unit

b) x-coordinate was multiplied by $\frac{3}{2}$
y-coordinate had a sign change and 1 was subtracted

- 6). a). ① The graph was vertically stretched by a factor of 4
 ② The graph was horizontally shifted right by 3 units

b). x-coordinate - 3 was added to each x-value
y-coordinate - each y value was multiplied by 4

c). $\{x | x \in \mathbb{R}\}, \{y | y \in \mathbb{R}\}$



7). a). Increasing: $(-\infty, -3), (4, \infty)$
 Constant: $(-3, 4)$

8). a) $2f(-x) - 1 = \{(9, -7), (6, -1), (3, 3)\}$
 b). $f(-3x) = \{(3, -3), (2, 0), (1, 2)\}$

9) $\{x | x \in \mathbb{R}\}$ 10). $\{x | x \neq 5\}$

11) $\{x | x \leq 2\}$ 12). $\{x | x \geq -1\}$