

key

More Transformations!

Graph the following functions using your knowledge about transformations. Identify the parent function and fill in the information that is asked.

1) $y = \frac{1}{2}(x + 4)^2 + 3$

Parent Function: $y = x^2$

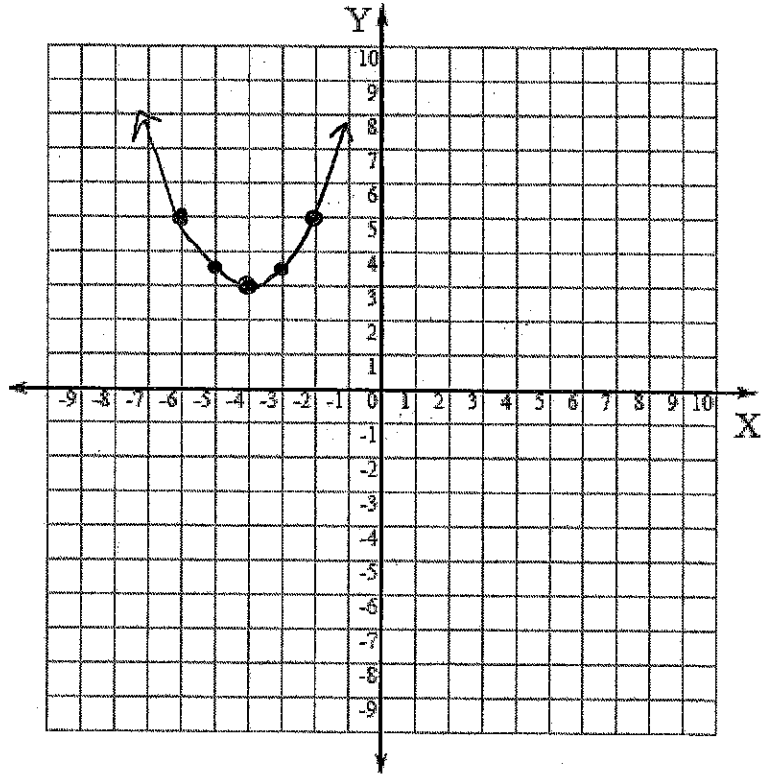
Domain: $(-\infty, \infty)$

Range: $[3, \infty)$

Vertex: $(-4, 3)$

Increasing: $(-3, \infty)$

Decreasing: $(-\infty, -3)$



2) $y = 2\sqrt{x - 2} + 2$

Parent Function: $y = \sqrt{x}$

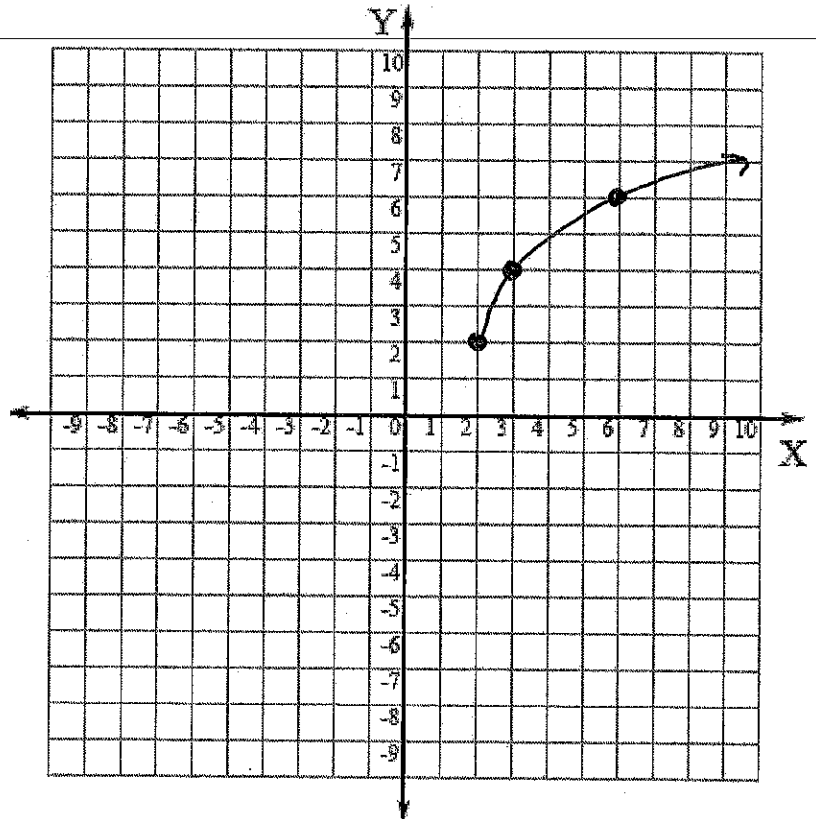
Domain: $[2, \infty)$

Range: $[2, \infty)$

Vertex: NA

Increasing: $[2, \infty)$

Decreasing: never



3) $y = \frac{-1}{(x+4)^2} - 6$

Parent Function: $y = \frac{1}{x^2}$

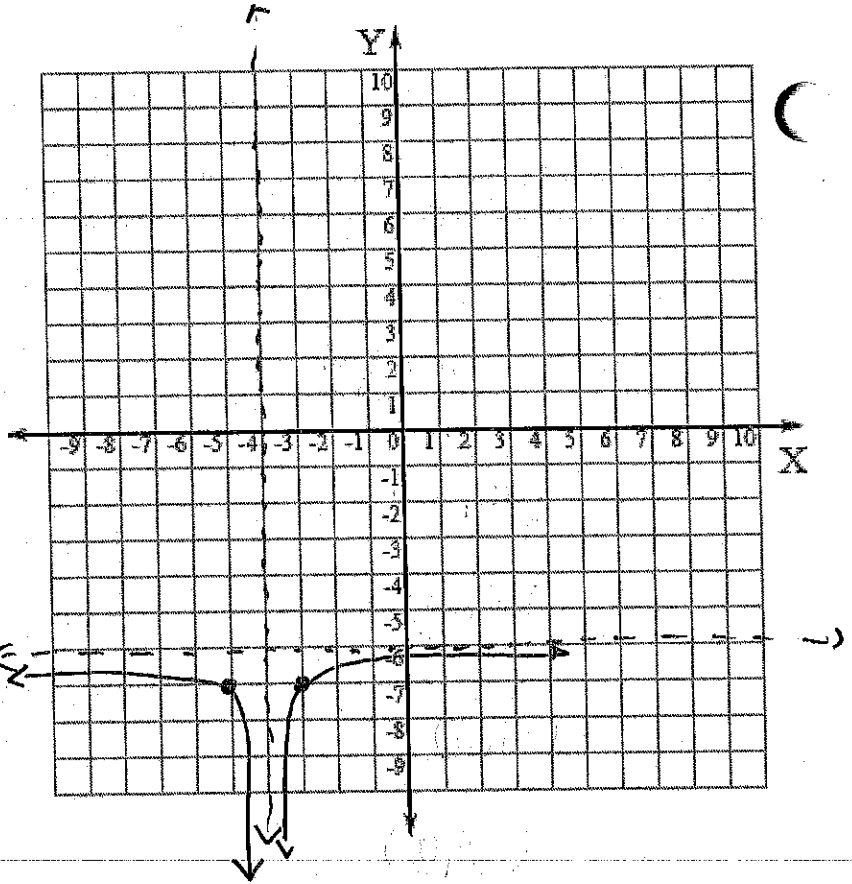
Domain: $(-\infty, -4) \cup (-4, \infty)$

Range: $(-\infty, -6)$

Vertex: none

Increasing: $(-4, \infty)$

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



4) $y = 2|x + 2| + 2$

Parent Function: $y = |x|$

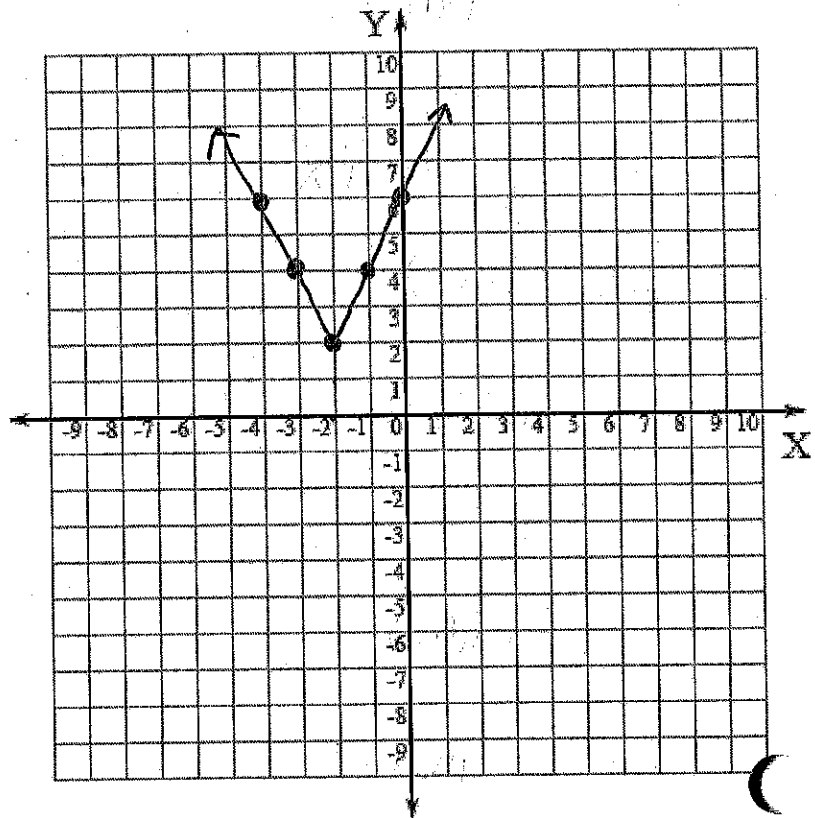
Domain: $(-\infty, \infty)$

Range: $[2, \infty)$

Vertex: $(-2, 2)$

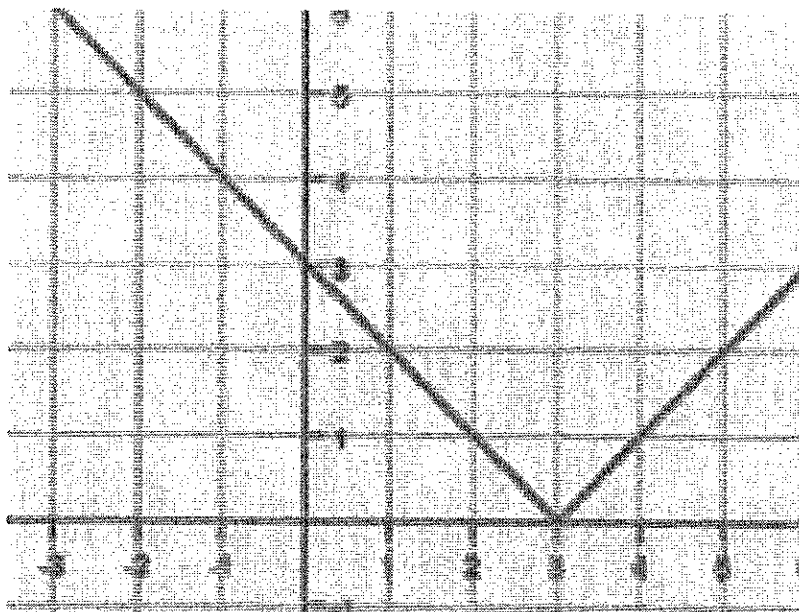
Increasing: $(-2, \infty)$

Decreasing: $(-\infty, -2)$

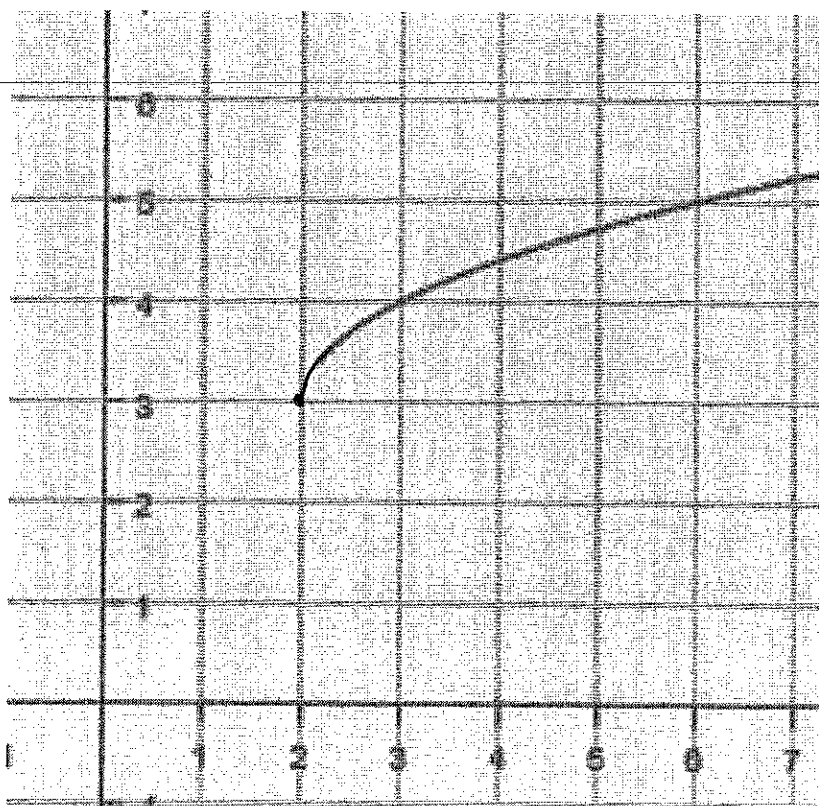


Give the equation of each function given the graph.

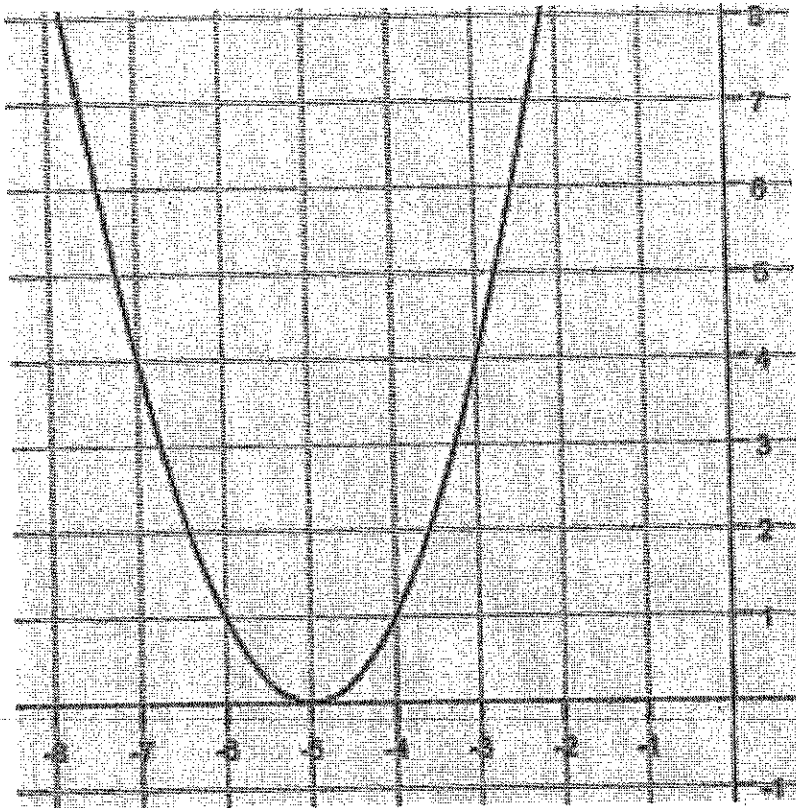
5) $y = |x - 3|$



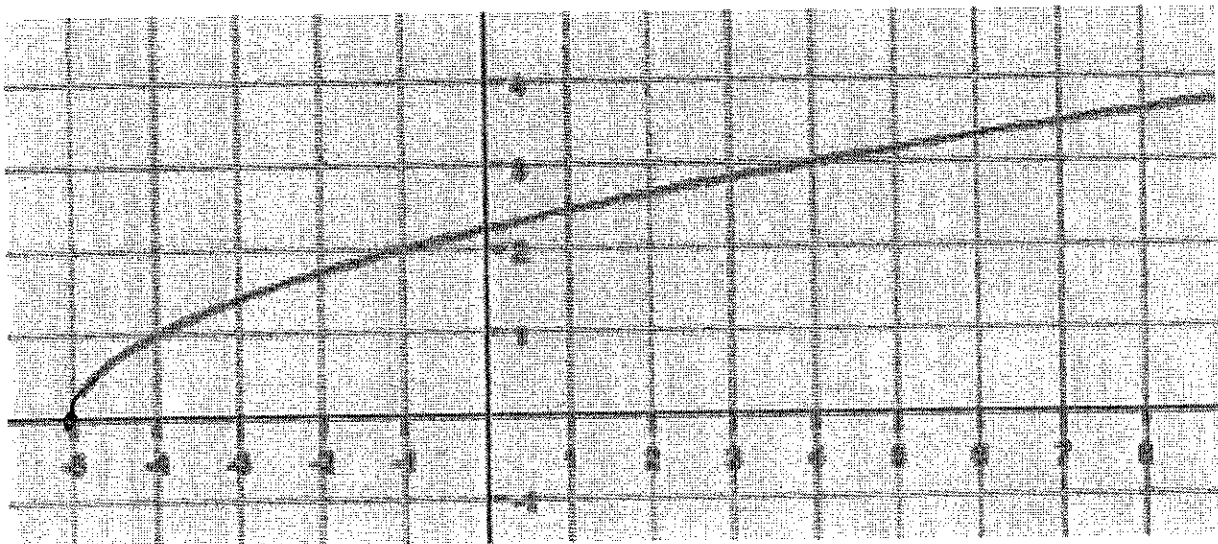
6) $y = \sqrt{x - 2} + 3$



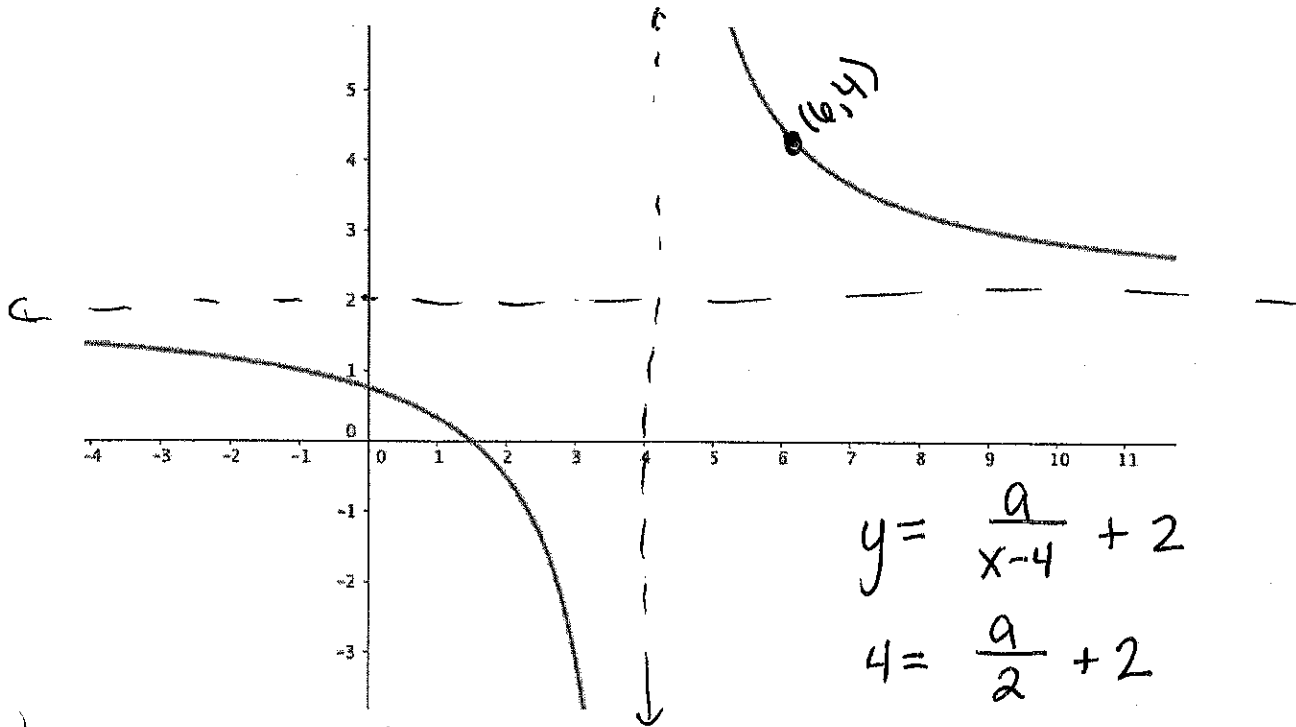
7) $y = (x+5)^2$



8) $y = \sqrt{x+5}$



$$9) y = \frac{4}{x-4} + 2$$



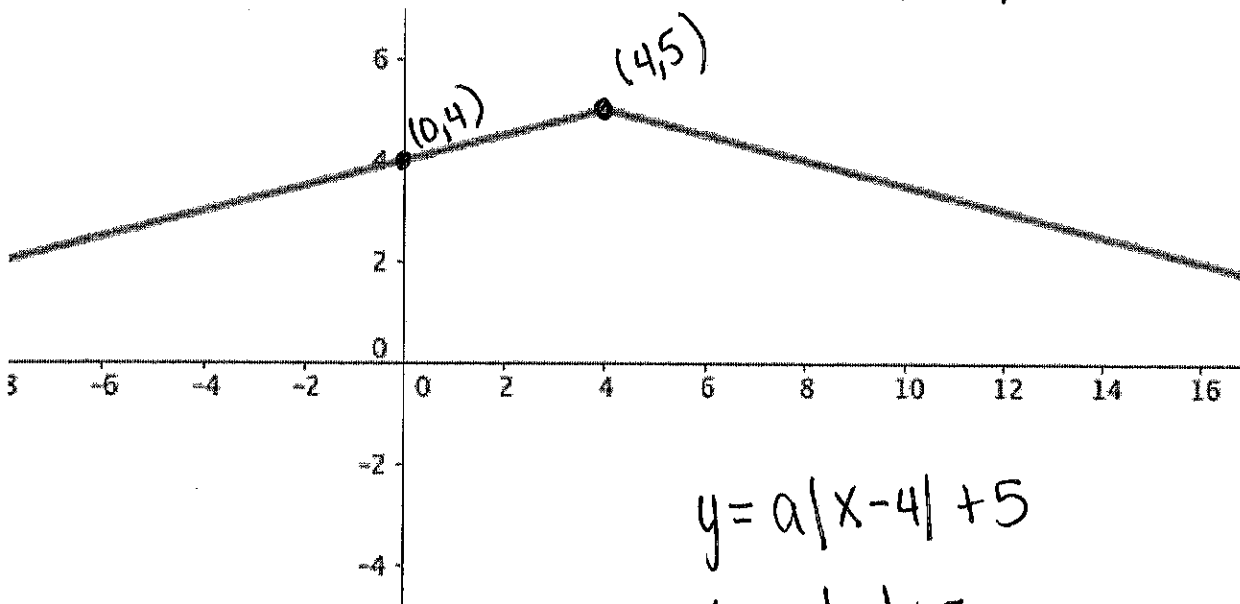
$$y = \frac{a}{x-4} + 2$$

$$4 = \frac{a}{2} + 2$$

$$2 = \frac{a}{2}$$

$$a = 4$$

$$10) y = -\frac{1}{4}|x-4| + 5$$



$$y = a|x-4| + 5$$

$$4 = a|-4| + 5$$

$$\frac{-1}{4} = \frac{4a}{4} \quad a = -\frac{1}{4}$$

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