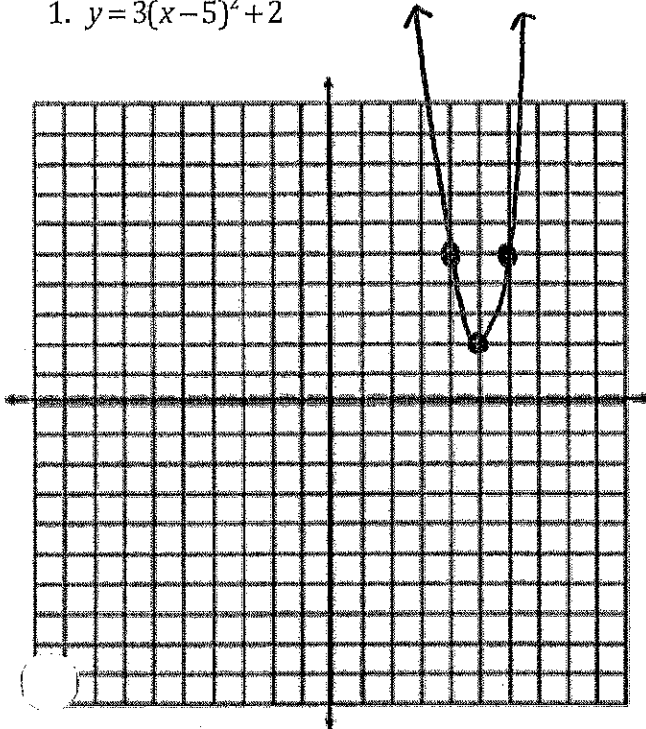


Name: Key

Problem Set 2.6

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

1. $y = 3(x-5)^2 + 2$



V stretch by 3
right 5
up 2

Parent Function: $y = x^2$

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

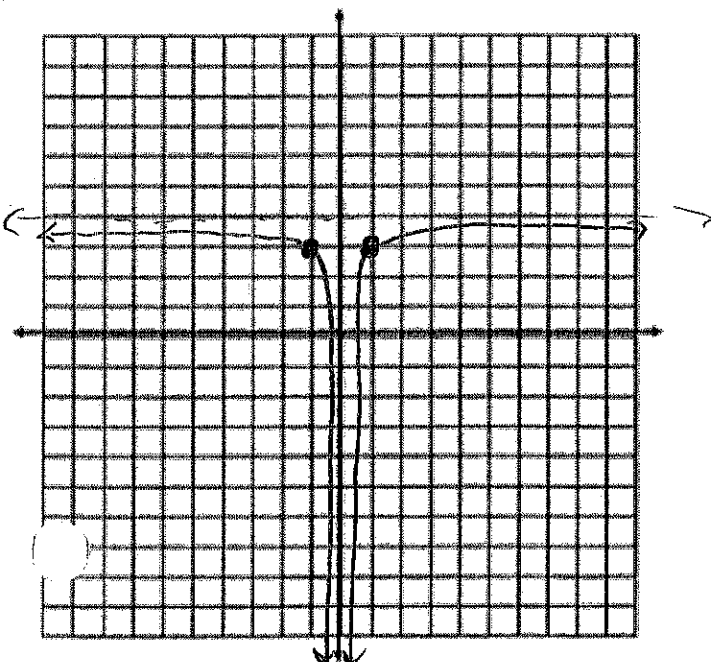
Range: $[2, \infty)$

Vertex: $(5, 2)$

Increasing: $(2, \infty)$

Decreasing: $(-\infty, 2)$

2. $y = \frac{-1}{x^2} + 4$



reflect x-axis
up 4

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

Domain: $(-\infty, 0) \cup (0, \infty)$

Range: $(-\infty, 4)$

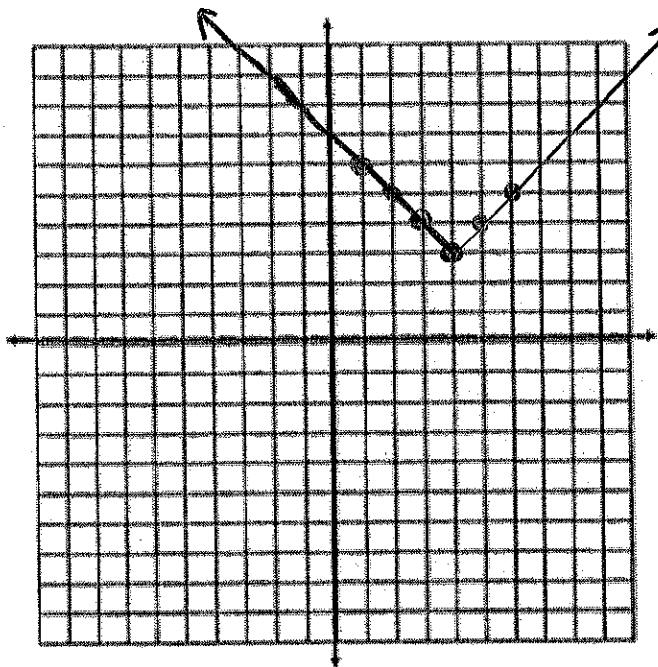
Asymptotes: $y = 4$ HA $x = 0$ VA

Increasing: $(0, \infty)$

Decreasing: $(-\infty, 0)$

3. $y = |x - 4| + 3$

right 4
up 3



Parent Function: $y = |x|$

Domain: \mathbb{R}

Range: $[3, \infty)$

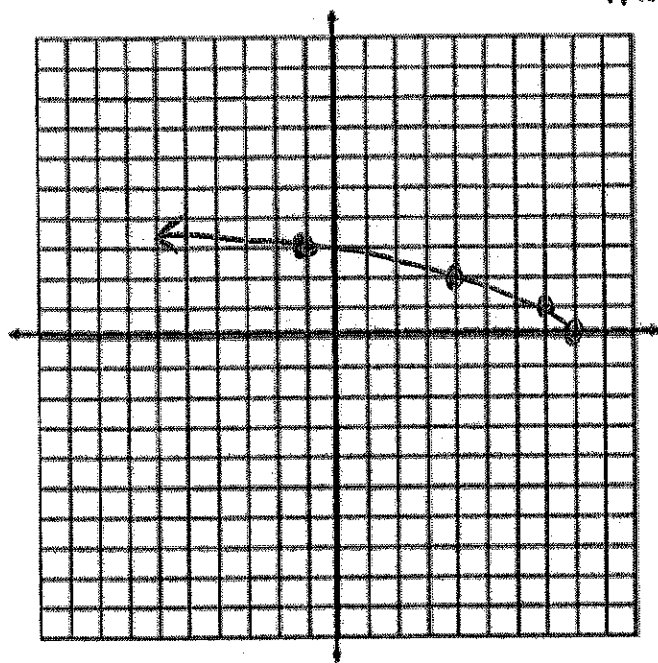
Vertex: $(4, 3)$

Increasing: $(4, \infty)$

Decreasing: $(-\infty, 4)$

4. $y = \sqrt{-x + 8} = \sqrt{-(x - 8)}$

reflect y axis
move right 8



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

Domain: $(-\infty, 8]$

Range: $[0, \infty)$

Increasing: never

Decreasing: $(-\infty, 8]$