Name Key

Date_____ Per_____

Review of Unit 5: Graphing Problems

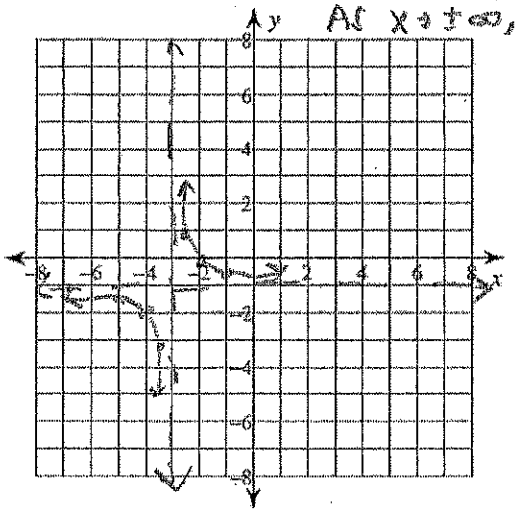
Directions: Graph each equation. Identify the domain, range, and any asymptotes. Then state the end behavior.

1. $f(x) = \frac{1}{x+3} - 1$

D: $x \neq -3$ R: $y \neq -1$

VA: $x = -3$ HA: $y = -1$

As $x \to \pm\infty$, $y \to -1$.

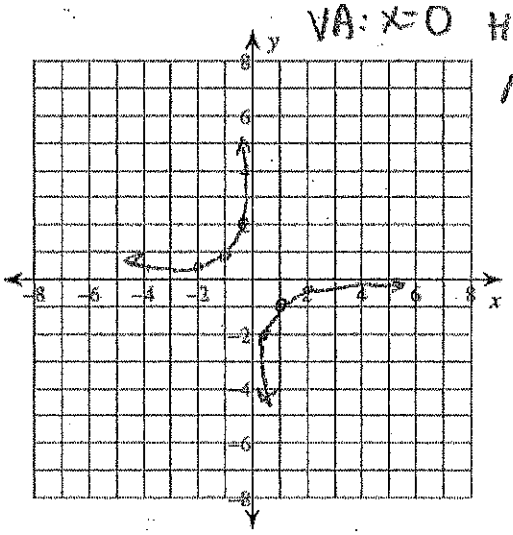


2. $g(x) = \frac{-1}{x}$

D: $x \neq 0$ R: $y \neq 0$

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

As $x \to \pm\infty$, $y \to 0$.

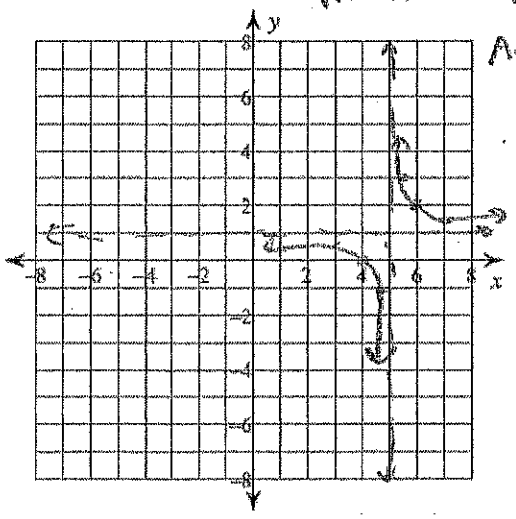


3. $h(x) = \frac{1}{x-5} + 1$

D: $x \neq 5$ R: $y \neq 1$

VA: $x = 5$ HA: $y = 1$

As $x \to \pm\infty$, $y \to 1$.

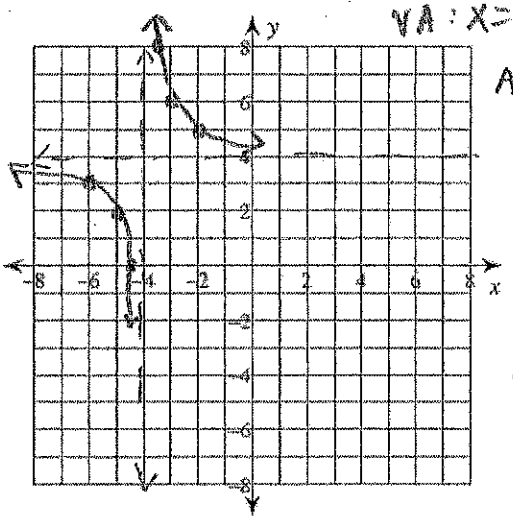


4. $k(x) = \frac{2}{x+4} + 4$

D: $x \neq -4$ R: $y \neq 4$

VA: $x = -4$ HA: $y = 4$

As $x \to \pm\infty$, $y \to 4$.



Describe the asymptotes of the following functions.

5. $y = \frac{2}{x-1} - 2$

VA: $x = 1$

HA: $y = -2$

6. $y = \frac{-2}{x+8} - 11$

VA: $x = -8$

HA: $y = -11$

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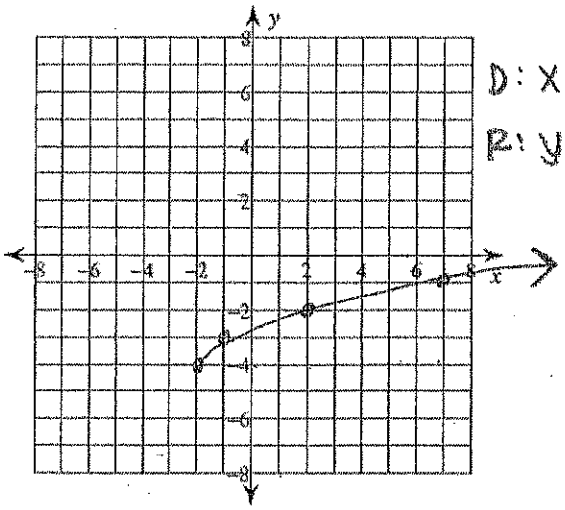
Graph the following functions and identify the domain and range.

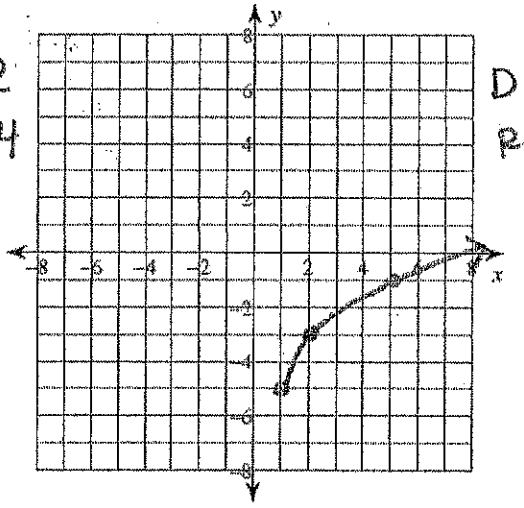
7. $y = \sqrt{x+2} - 4$



D: $x \geq -2$

R: $y \geq -4$

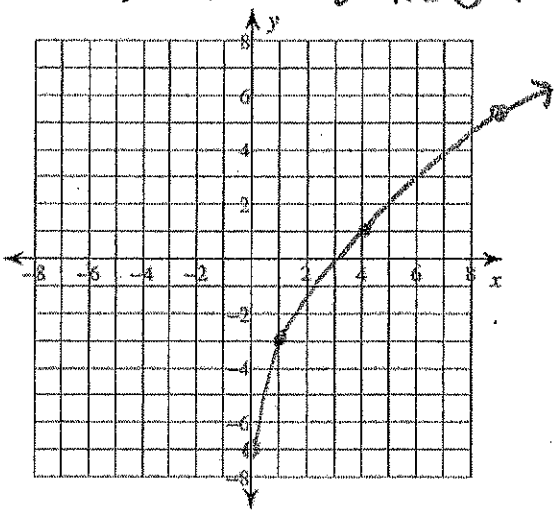
8. $y = 2\sqrt{x-1} - 5$



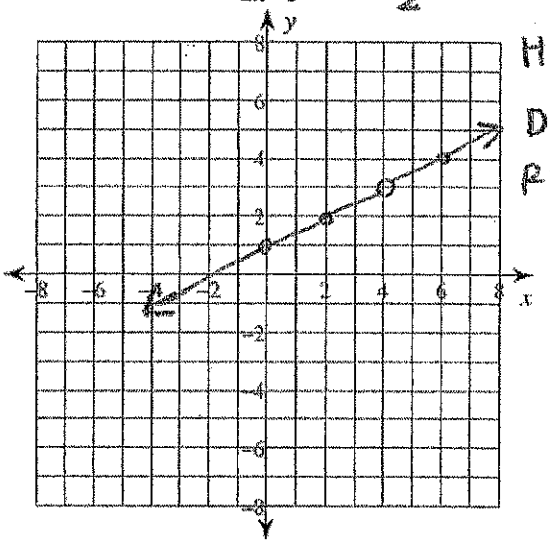
D: $x \geq 1$

R: $y \geq -5$

9. $y = 4\sqrt{x} - 7$ D: $x \geq 0$ R: $y \geq -7$



10. $y = \frac{(x+2)(x-4)}{2x-8} = \frac{1}{2}x + 1$



Hole: $x = 4$

D: $x \neq 4$

R: $y \neq 3$

11. Create a sample function $f(x)$ that has a vertical asymptote at x = 3, a horizontal asymptote at y = 2 and a hole at x = 5.

$$f(x) = \frac{2(x-5)(x+5)}{(x-5)(x-3)}$$