

6. $\frac{2x+4}{5x} = \frac{2}{x}$

7. $\frac{x+1}{x-2} = \frac{x-3}{x}$

8. $\frac{2x+3}{3x} = \frac{x}{2x-3}$

Day 7 Homework: Graphing Rational Functions

Graph the rational function including the asymptotes and a set of guide points from the slope.

1) $y = \frac{1}{x-3}$

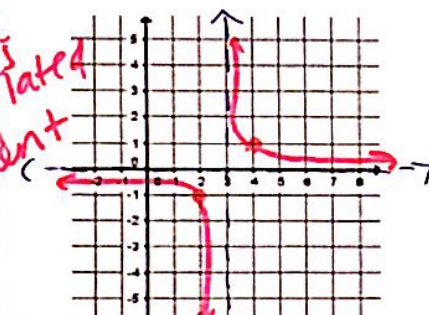
H.A. at $y = 0$

V.A. at $x = 3$

$a = 1$

Use a to find the guide points:
 (2, -1) and (4, 1)

notice it has translated from parent



Domain: $x \neq 3$

Range: $y \neq 0$

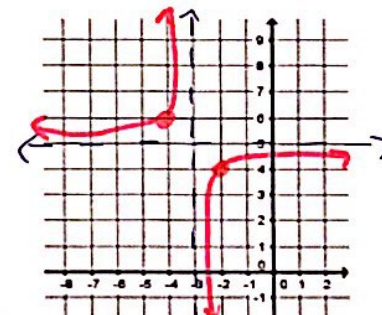
2) $y = \frac{-1}{x+3} + 5$ *reflects*

H.A. at $y = 5$

V.A. at $x = -3$

$a = -1$

Use a to find the guide points:
 (-4, 6) and (-2, 4)



Domain: $x \neq -3$

Range: $y \neq 5$

3) $y = \frac{2}{x+1} - 3$

H.A. at $y = -3$

V.A. at $x = -1$

$a = 2$

Use a to find the guide points:
 (0, -3) and (-2, -3)



Domain: $x \neq -1$

Range: $y \neq -3$

Right 3

Parent (-1, -1)

New (2, -1)

4) $y = \frac{-2}{x-2} - 1$
 H.A. at $y = \underline{-1}$
 V.A. at $x = \underline{2}$
 $a = \underline{-2}$ Reflects
 Use a to find the guide points:
 $(1, 1)$ and $(3, -3)$

Domain: $x \neq 2$
 Range: $y \neq -1$

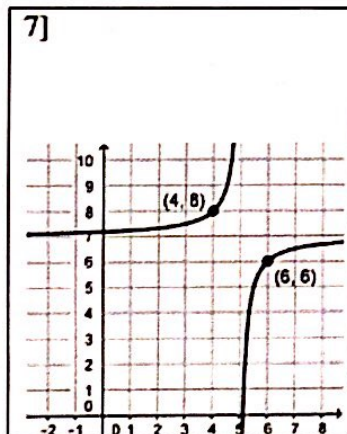
5) $y = \frac{3}{x} + 1$
 H.A. at $y = \underline{1}$
 V.A. at $x = \underline{0}$
 $a = \underline{3}$
 Use a to find the guide points:
 $(-1, -2)$ and $(1, 4)$

Domain: $x \neq 0$
 Range: $y \neq 1$

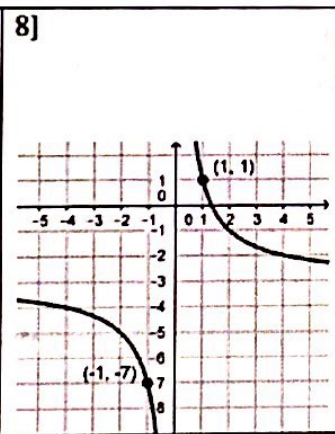
6) $y = \frac{-2}{x+2} + 3$
 H.A. at $y = \underline{3}$
 V.A. at $x = \underline{-2}$
 $a = \underline{-2}$ Reflects
 Use a to find the guide points:
 $(-3, 5)$ and $(-1, 1)$

Domain: $x \neq -2$
 Range: $y \neq 3$

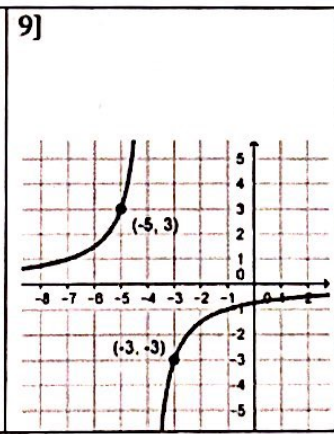
Write the equation of the rational function.



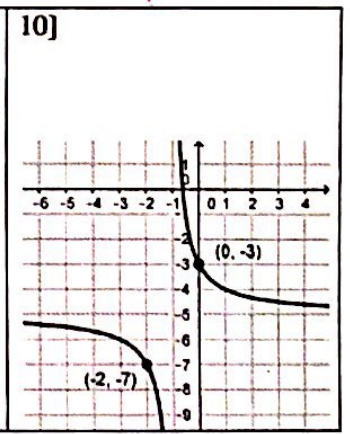
$$y = \frac{-1}{x-5} + 7$$



$$y = \frac{4}{x} - 3$$



$$y = \frac{-3}{x+4}$$



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