

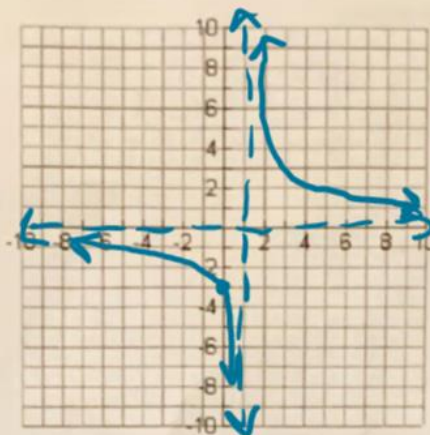
Algebra II
 GRAPHING RATIONAL FUNCTIONS

NAME _____
 DATE _____

Find in the blanks. Graph the asymptotes with dotted lines. Then graph the functions.

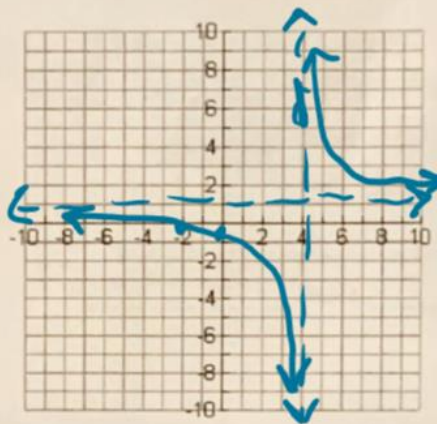
1. $y = \frac{3}{x-1}$

Domain: \mathbb{R} except $x=1$
 Range: \mathbb{R} except $y=0$
 Vertical Asymptote: $x=1$
 Horizontal Asymptote: $y=0$
 Slant Asymptote: None
 Holes: None
 x-int: None y-int: $(0, -3)$



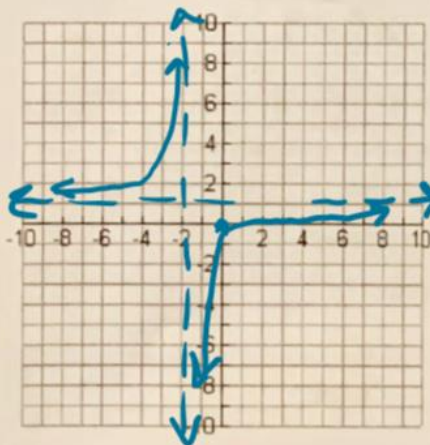
2. $y = \frac{x+2}{x-4}$

Domain: \mathbb{R} except $x=4$
 Range: \mathbb{R} except $y=1$
 Vertical Asymptote: $x=4$
 Horizontal Asymptote: $y=1$
 Slant Asymptote: None
 Holes: None
 x-int: $(-2, 0)$ y-int: $(0, -1/2)$



3. $y = \frac{x}{x+2}$

Domain: \mathbb{R} except $x=-2$
 Range: \mathbb{R} except $y=1$
 Vertical Asymptote: $x=-2$
 Horizontal Asymptote: $y=1$
 Slant Asymptote: None
 Holes: None
 x-int: $(0, 0)$ y-int: $(0, 0)$



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

Domain: \mathbb{R} except $x=3$

Range: \mathbb{R} except $y=6$

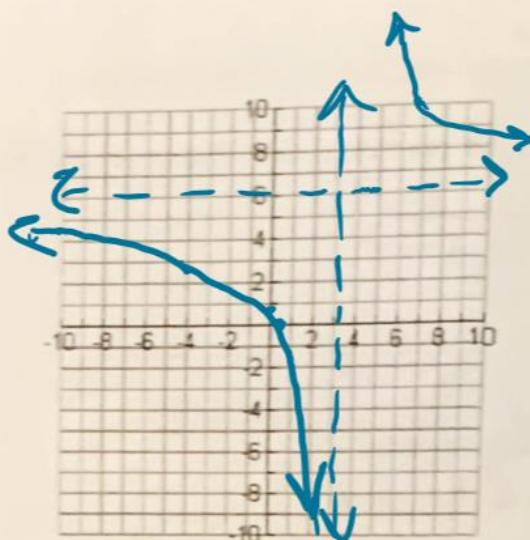
Vertical Asymptote: $x=3$

Horizontal Asymptote: $y=6$

Slant Asymptote: None

Holes: None

x-int: $(\frac{1}{3}, 0)$ y-int: $(0, \frac{2}{3})$



$$5. y = \frac{x^2+5x-14}{x+3} = \frac{(x+7)(x-2)}{x+3}$$

Domain: \mathbb{R} except $x=3, x=-2$

Range: \mathbb{R} except $y=x+2$

Vertical Asymptote: $x=-3$

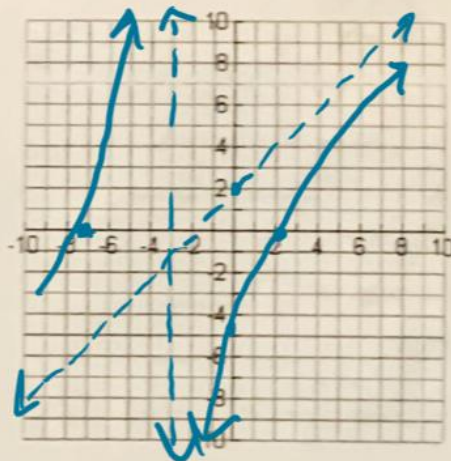
Horizontal Asymptote: None

Slant Asymptote: $y=x+2$

Holes: None

x-int: $(-7, 0)$ (2, 0) y-int: $(0, \frac{4}{3})$

$$\begin{array}{r} 1 \ 5 \ -14 \\ -3 \ -6 \\ \hline 1 \ 2 \ 20 \end{array}$$



$$6. y = \frac{x+3}{x^2-9} = \frac{x+3}{(x+3)(x-3)} = \frac{1}{x-3}$$

Domain: \mathbb{R} except $x=3, x=-3$

Range: \mathbb{R} except $y=0, y=-\frac{1}{6}$

Vertical Asymptote: $x=3$

Horizontal Asymptote: $y=0$

Slant Asymptote: None

Holes: $(-3, -\frac{1}{6})$

x-int: None y-int: $(0, -\frac{1}{3})$

