Asymptotes Practice

Name: _____ Date: _____

Question 1

Determine the asymptotes

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

Vertical Asymptote :

Oblique Asymptote :

Asymptotes Practice

II. $f(x) = \frac{-2}{x - 5}$

Vertical Asymptote:

Horizontal Asymptote:

III. $f(x) = \frac{2x + 1}{x}$

Vertical Asymptote:

Horizontal Asymptote:

IV. $f(x) = \frac{1}{(x - 2)^2}$

Vertical Asymptote:

Horizontal Asymptote:

V. $f(x) = \frac{x^2 + 3x}{2x^3 - 5x^2 - 3x} \rightarrow \frac{x(x + 3)}{x(2x^2 - 5x - 3)} \rightarrow \frac{x + 3}{(2x + 1)(x - 3)}$

Vertical Asymptotes:

Horizontal Asymptote:

Asymptotes Practice

Name: **Key** Date: _____

Question 1

Determine the asymptotes

I. $f(x) = \dfrac{x^2 - 4x + 3}{x + 1}$

Vertical Asymptote : $x = -1$

Oblique Asymptote : $y = x - 5$

$x+1 \overline{)\ x^2 - 4x + 3} \rightarrow \dfrac{x^2}{x} \rightarrow x \rightarrow x(x+1) \rightarrow x^2 + x \rightarrow$

$$\begin{array}{r} x \\ x+1 \overline{)\ x^2 - 4x + 3} \\ -\ \underline{x^2 + x} \\ -5x + 3 \end{array}$$

$$\begin{array}{r} x \\ x+1 \overline{)\ x^2 - 4x + 3} \\ -\ \underline{x^2 + x} \\ -5x + 3 \end{array} \rightarrow \frac{-5x}{x} \rightarrow -5 \rightarrow -5(x+1) \rightarrow -5x - 5 \rightarrow$$

$$\begin{array}{r} x - 5 \\ x+1 \overline{)\ x^2 - 4x + 3} \\ -\ \underline{x^2 + x} \\ -5x + 3 \\ -\ \underline{-5x - 5} \\ 8 \end{array}$$

Asymptotes Practice

II. $f(x) = \frac{-2}{x - 5}$

Vertical Asymptote : $x = 5$

Horizontal Asymptote : $y = 0$

III. $f(x) = \frac{2x + 1}{x}$

Vertical Asymptote : $x = 0$

Horizontal Asymptote : $y = 2$

IV. $f(x) = \frac{1}{(x - 2)^2}$

Vertical Asymptote : $x = 2$

Horizontal Asymptote : $y = 0$

V. $f(x) = \frac{x^2 + 3x}{2x^3 - 5x^2 - 3x} \rightarrow \frac{x(x + 3)}{x(2x^2 - 5x - 3)} \rightarrow \frac{x + 3}{(2x + 1)(x - 3)}$

Vertical Asymptotes : $x = -1/2$ and $x = 3$

Horizontal Asymptote : $y = 0$