

Sheet 2.7a PreCalc

Finding all Asymptotes

Name _____

Date _____ Period ____

Completely analyze each rational function. Find all asymptotes and intercepts. Always use these features to create a sketch, and use your calculator to tie it all together.

Class Example: $f(x) = \frac{x-2}{5+x} + 6$

Vertical Asymptote(s): _____

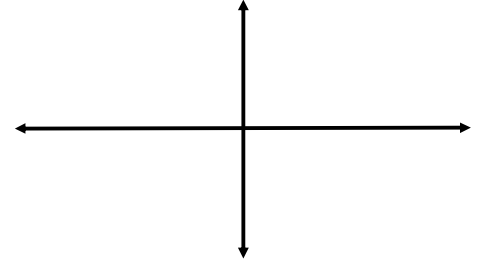
Horizontal Asymptote: _____

Slant Asymptote: _____

y intercept: _____

x intercept: _____

Always find these by "hand"
DON'T just use the
graphing calculator



1. $f(x) = \frac{5x^2 + 3x - 2}{x+2}$ [adjust window / zoom out]

Vertical Asymptote(s): _____

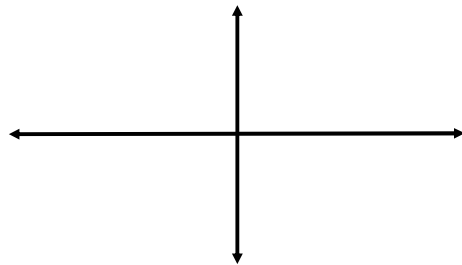
Horizontal Asymptote: _____

Slant Asymptote: _____

y intercept: _____

x intercept: _____

Always find these by "hand"
DON'T just use the
graphing calculator



2. $f(x) = \frac{x+5}{x^2}$

Vertical Asymptote(s): _____

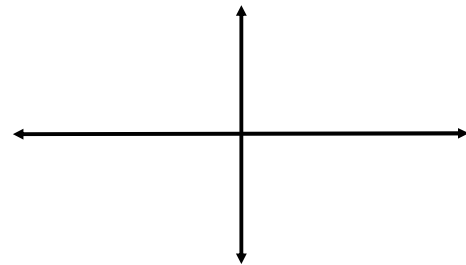
Horizontal Asymptote: _____

Slant Asymptote: _____

y intercept: _____

x intercept: _____

Always find these by "hand"
DON'T just use the
graphing calculator



3. $f(x) = \frac{2x^3 + 7x^2 + 3}{x^2}$ **Window**
 $-10 \leq x \leq 10$ $-20 \leq y \leq 50$

Vertical Asymptote(s): _____

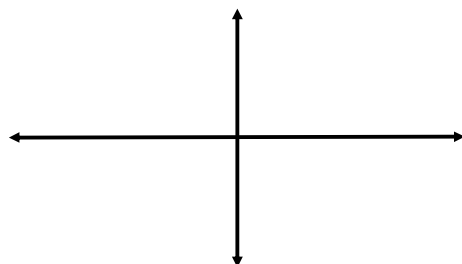
Horizontal Asymptote: _____

Slant Asymptote: _____

y intercept: _____

x intercept: Not expected to find without a calculator

Always find these by "hand"
DON'T just use the
graphing calculator



4. $f(x) = \frac{6x^3 + 8}{2x^2 - 8} + 4$

Vertical Asymptote(s): _____

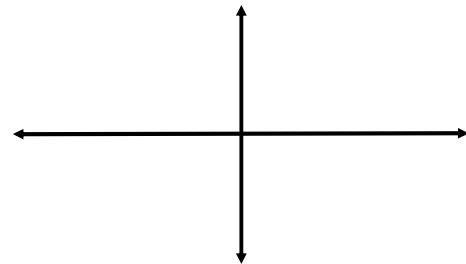
Horizontal Asymptote: _____

Slant Asymptote: _____

y intercept: _____

x intercept: _____

Always find these by "hand"
DON'T just use the
graphing calculator



$$5. f(x) = \frac{3}{x^2 + 9}$$

Window
 $-20 \leq x \leq 20 \quad -1 \leq y \leq 1$

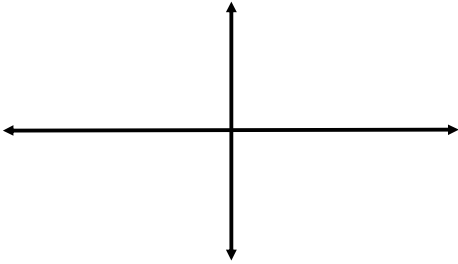
Vertical Asymptote(s): _____

Horizontal Asymptote: _____

Slant Asymptote: _____

Always find these by "hand"
 DON'T just use the graphing calculator

$\left\{ \begin{array}{l} \text{y intercept: } \underline{\hspace{2cm}} \\ \text{x intercept: } \underline{\hspace{2cm}} \end{array} \right.$



$$6. f(x) = \frac{-2x^3 + 4x^2 - x + 3}{x^2 - 16}$$

Adjust Window
 ZOOM OUT

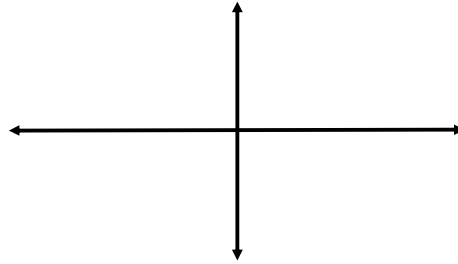
Vertical Asymptote(s): _____

Horizontal Asymptote: _____

Slant Asymptote: _____

Always find these by "hand"
 DON'T just use the graphing calculator

$\left\{ \begin{array}{l} \text{y intercept: } \underline{\hspace{2cm}} \\ \text{x intercept: } \underline{\hspace{2cm}} \end{array} \right.$



$$7. f(x) = \frac{3x^2 - 6}{2x^2 - 8}$$

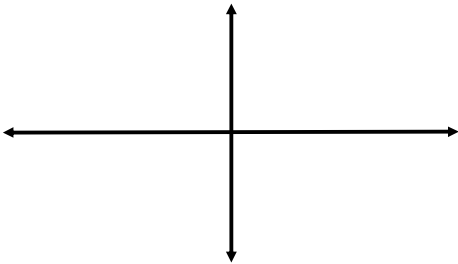
Vertical Asymptote(s): _____

Horizontal Asymptote: _____

Slant Asymptote: _____

Always find these by "hand"
 DON'T just use the graphing calculator

$\left\{ \begin{array}{l} \text{y intercept: } \underline{\hspace{2cm}} \\ \text{x intercept: } \underline{\hspace{2cm}} \end{array} \right.$



$$8. f(x) = \frac{8}{x-2} + 2$$

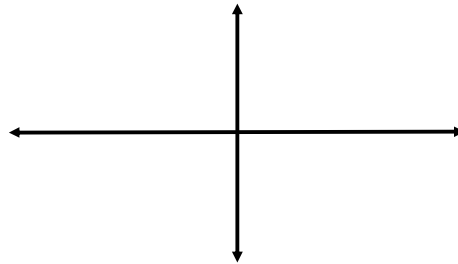
Vertical Asymptote(s): _____

Horizontal Asymptote: _____

Slant Asymptote: _____

Always find these by "hand"
 DON'T just use the graphing calculator

$\left\{ \begin{array}{l} \text{y intercept: } \underline{\hspace{2cm}} \\ \text{x intercept: } \underline{\hspace{2cm}} \end{array} \right.$



$$9. f(x) = \frac{x+3}{x^2 - 2x - 15}$$

You will have to factor the denominator to help...

Vertical Asymptote(s)?: _____

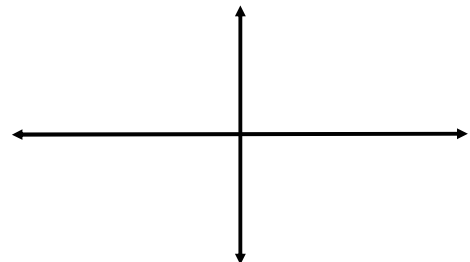
Horizontal Asymptote: _____

Slant Asymptote?: _____

y intercept: _____

x intercept: _____

Something Else?: _____



Do you remember what we talked about the first day? There is something else happening @ $x = -6$