1.11B Polynomial Long Division and Slant Asymptotes

AP Precalculus   Name: _____

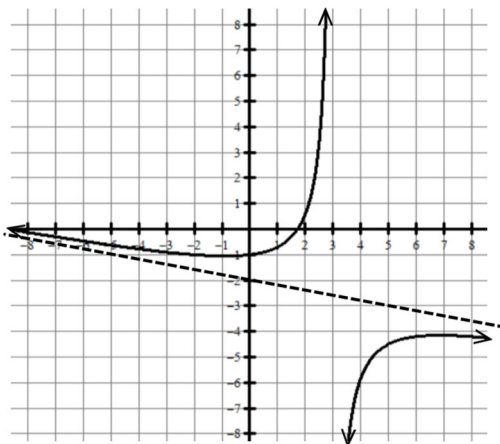
Divide the following using long division or synthetic division.

1. $\dfrac{2x^3-2x^2+10x-3}{x^2+3x-2}$

2. $\dfrac{x^4-4x^2-6x-4}{x-3}$

Use the graph of f to write the equation of the slant asymptote.

3.

Determine if the following functions have a horizontal asymptote, slant asymptote, or neither.

4. $f(x) = \dfrac{-3x^4+5x+1}{2x^2+1}$

Circle one:

The graph of f has a horizontal asymptote.

The graph of f has a slant asymptote.

The graph of f does not have a horziontal or slant asymptote.

5. $f(x) = \dfrac{2x^4+7x^2+1}{3x^5-5x^2+5x}$

Circle one:

The graph of f has a horizontal asymptote.

The graph of f has a slant asymptote.

The graph of f does not have a horziontal or slant asymptote.

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

Circle one:

The graph of f has a horizontal asymptote.

The graph of f has a slant asymptote.

The graph of f does not have a horziontal or slant asymptote.

Write the equation for the slant asymptote for the following functions.

7. $f(x) = \dfrac{9x^3 - 12x^2 - 5x + 1}{3x^2 - 2x + 1}$

8. $f(x) = \dfrac{2x^2 + 9x + 6}{x + 4}$

Answers to 1.11B CA #1

1. $2x - 8 + \dfrac{38x - 19}{x^2 + 3x - 2}$	2. $x^3 + 3x^2 + 5x + 9 + \dfrac{23}{x - 3}$
3. $y = -\dfrac{1}{5}x - 2$	4. The graph of f does not have a horziontal or slant asymptote.
5. The graph of f has a horizontal asymptote.	6. The graph of f has a slant asymptote.
7. $y = 3x - 2$	8. $y = 2x + 1$