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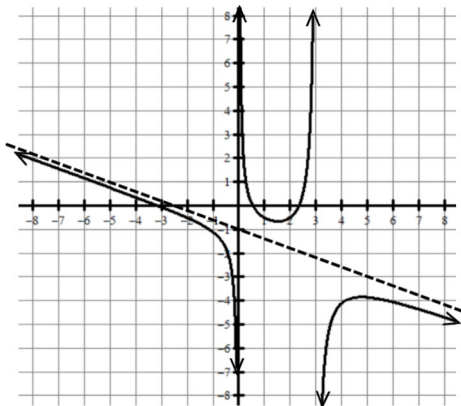**Divide the following using long division or synthetic division.**

1. $\dfrac{6x^3-2x^2+10x-3}{2x^2-x+2}$

2. $\dfrac{4x^3-10x^2+x+8}{2x-3}$

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

3.



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

4. $f(x) = \dfrac{x^2+3x-2}{2x^4++5x^3-3x1}$

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

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. $f(x) = \dfrac{x^5+2x^3+8x+2}{2x^4+3x^2-5}$

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.

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

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

## Answers to 1.11B CA #2

| | |
|---|---|
| 1. $3x + \dfrac{1}{2} + \dfrac{\frac{9}{2}x - 4}{2x^2 - x + 2}$ | 2. $2x^2 - 2x - 2 - \dfrac{1}{2x - 3}$ |
| 3. $y = -\dfrac{2}{5}x - 1$ | 4. The graph of $f$ has a horizontal asymptote. |
| 5. The graph of $f$ has a horizontal asymptote. | 6. The graph of $f$ has a slant asymptote. |
| 7. $y = 2x - 3$ | 8. $y = 3x + 5$ |