1. Determine the vertical asymptotes and holes in the rational function below.

$$f(x) = \frac{4x^3 + 4x^2 - 33x - 45}{4x^2 - 4x - 15}$$

A. Vertical Asymptote of $x = 2.5$ and hole at $x = -1.5$

B. Vertical Asymptotes of $x = 2.5$ and $x = -1.5$ with no holes.

C. Vertical Asymptotes of $x = 2.5$ and $x = -2.5$ with a hole at $x = -1.5$

D. Vertical Asymptote of $x = 1.0$ and hole at $x = -1.5$

E. Holes at $x = 2.5$ and $x = -1.5$ with no vertical asymptotes.

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2. Determine the horizontal and/or oblique asymptotes in the rational function below.

$$f(x) = \frac{9x^3 - 19x + 10}{3x^2 - 10x - 25}$$

A. Horizontal Asymptote at $y = 5.0$

B. Horizontal Asymptote of $y = 3.0$

C. Horizontal Asymptote of $y = 5.0$ and Oblique Asymptote of $y = 3x + 10$

D. Oblique Asymptote of $y = 3x + 10$.

E. Horizontal Asymptote of $y = 3.0$ and Oblique Asymptote of $y = 3x + 10$

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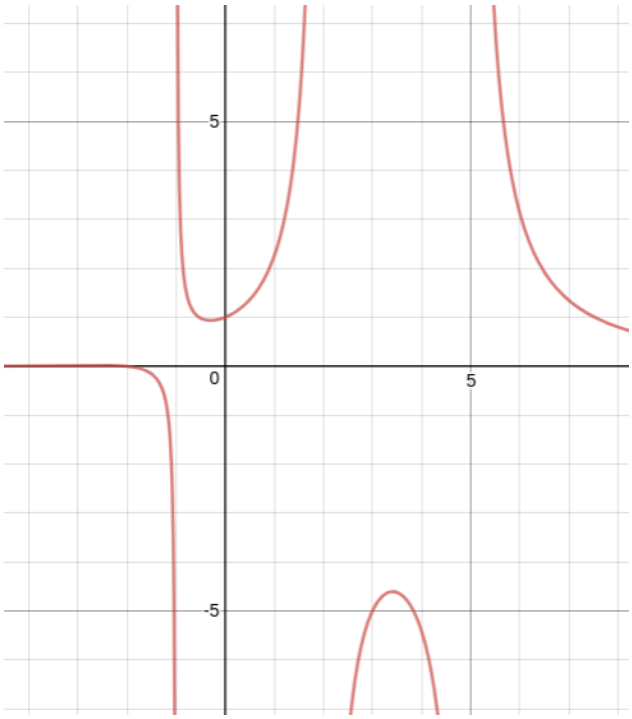
3. Which of the following functions *could* be the graph below?



A. $f(x) = \dfrac{x^3 + 4x^2 - 17x - 60}{x^3 - 4x^2 + x + 6}$

B. $f(x) = \dfrac{x^3 - 2x^2 - 9x + 18}{x^3 + 6x^2 + 3x - 10}$

C. $f(x) = \dfrac{x^3 - 1x^2 - 16x + 16}{x^3 - 6x^2 + 3x + 10}$

D. $f(x) = \dfrac{x^3 + 11x^2 + 34x + 24}{x^3 - 2x^2 - 5x + 6}$

E. None of the above are possible equations for the graph.

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4. Determine the horizontal and/or oblique asymptotes in the rational function below.

$$f(x) = \frac{4x^2 - 17x + 15}{12x^3 - 59x^2 + 95x - 50}$$

A. Horizontal Asymptote of $y = 0$

B. Horizontal Asymptote of $y = 3.000$ and Oblique Asymptote of $y = 3x - 2$

C. Horizontal Asymptote of $y = 3.000$

D. Horizontal Asymptote at $y = 3.000$

E. Oblique Asymptote of $y = 3x - 2$.

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5. Determine the vertical asymptotes and holes in the rational function below.

$$f(x) = \frac{8x^3 - 50x^2 + 81x - 36}{6x^2 - 5x - 6}$$

A. Vertical Asymptote of $x = 1.333$ and hole at $x = 1.5$

B. Vertical Asymptote of $x = -0.667$ and hole at $x = 1.5$

C. Vertical Asymptotes of $x = -0.667$ and $x = 0.75$ with a hole at $x = 1.5$

D. Holes at $x = -0.667$ and $x = 1.5$ with no vertical asymptotes.

E. Vertical Asymptotes of $x = -0.667$ and $x = 1.5$ with no holes.
