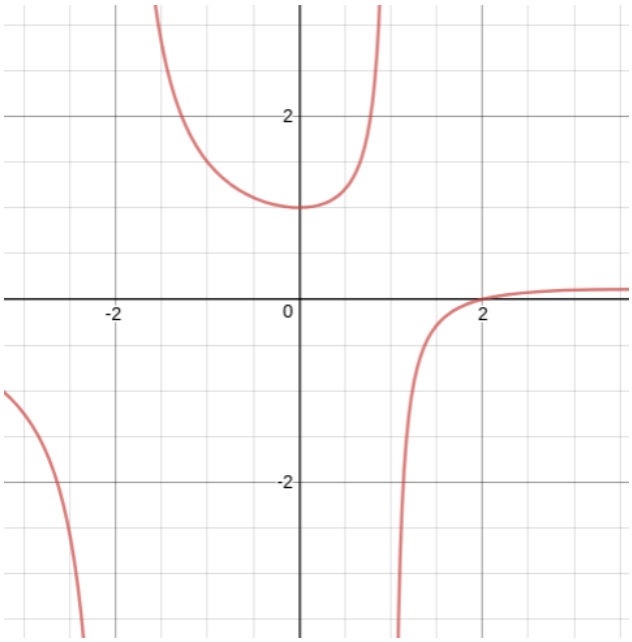
1. Which of the following functions *could* be the graph below?



A. $f(x) = \dfrac{x^3 + 7x^2 - 6x - 72}{x^3 - 3x^2 - 6x + 8}$

B. $f(x) = \dfrac{x^3 + 6x^2 + 3x - 10}{x^3 - 5x^2 + 2x + 8}$

C. $f(x) = \dfrac{x^3 + 10x^2 + 27x + 18}{x^3 + 6x^2 + 3x - 10}$

D. $f(x) = \dfrac{x^3 - 3x^2 - 6x + 8}{x^3 - 6x^2 + 3x + 10}$

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

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

$$f(x) = \frac{16x^3 + 24x^2 - 31x - 30}{4x^2 + 19x + 12}$$

A. Horizontal Asymptote of $y = 4.0$ and Oblique Asymptote of $y = 4x - 13$

B. Horizontal Asymptote of $y = -4.0$ and Oblique Asymptote of $y = 4x - 13$

C. Horizontal Asymptote at $y = -4.0$

D. Horizontal Asymptote of $y = 4.0$

E. Oblique Asymptote of $y = 4x - 13$.

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

$$f(x) = \frac{6x^3 + 13x^2 - 13x - 30}{8x^2 - 2x - 15}$$

A. Vertical Asymptote of $x = -1.25$ and hole at $x = 1.5$

B. Vertical Asymptote of $x = 0.75$ and hole at $x = 1.5$

C. Vertical Asymptotes of $x = -1.25$ and $x = 1.5$ with no holes.

D. Holes at $x = -1.25$ and $x = 1.5$ with no vertical asymptotes.

E. Vertical Asymptotes of $x = -1.25$ and $x = -1.667$ with a hole at $x = 1.5$

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

$$f(x) = \frac{-12x^3 - 25x^2 + 28x + 12}{6x^3 - 23x^2 + 12x + 20}$$

A. Horizontal Asymptote of $y = 0$

B. Horizontal Asymptote of $y = -0.500$

C. None of the above

D. Vertical Asymptote of $y = 2$

E. Vertical Asymptote of $y = -0.750$

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

$$f(x) = \frac{6x^3 - 1x^2 - 72x - 80}{6x^2 + 5x - 25}$$

A. Vertical Asymptote of $x = 1.667$ and hole at $x = -2.5$

B. Holes at $x = 1.667$ and $x = -2.5$ with no vertical asymptotes.

C. Vertical Asymptotes of $x = 1.667$ and $x = -2.5$ with no holes.

D. Vertical Asymptotes of $x = 1.667$ and $x = -1.333$ with a hole at $x = -2.5$

E. Vertical Asymptote of $x = 1.0$ and hole at $x = -2.5$
