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

$$f(x) = \frac{9x^3 - 54x^2 + 80x - 32}{9x^2 - 16}$$

A. Vertical Asymptotes of $x = -1.333$ and $x = 1.333$ with no holes.

B. Vertical Asymptote of $x = -1.333$ and hole at $x = 1.333$

C. Holes at $x = -1.333$ and $x = 1.333$ with no vertical asymptotes.

D. Vertical Asymptotes of $x = -1.333$ and $x = 0.667$ with a hole at $x = 1.333$

E. Vertical Asymptote of $x = 1.0$ and hole at $x = 1.333$

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

$$f(x) = \frac{2x^2 - 13x + 20}{6x^3 - 35x^2 + 34x + 40}$$

A. Horizontal Asymptote at $y = 4.000$

B. Horizontal Asymptote of $y = 3.000$

C. Horizontal Asymptote of $y = 0$

D. Horizontal Asymptote of $y = 3.000$ and Oblique Asymptote of $y = 3x + 2$

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

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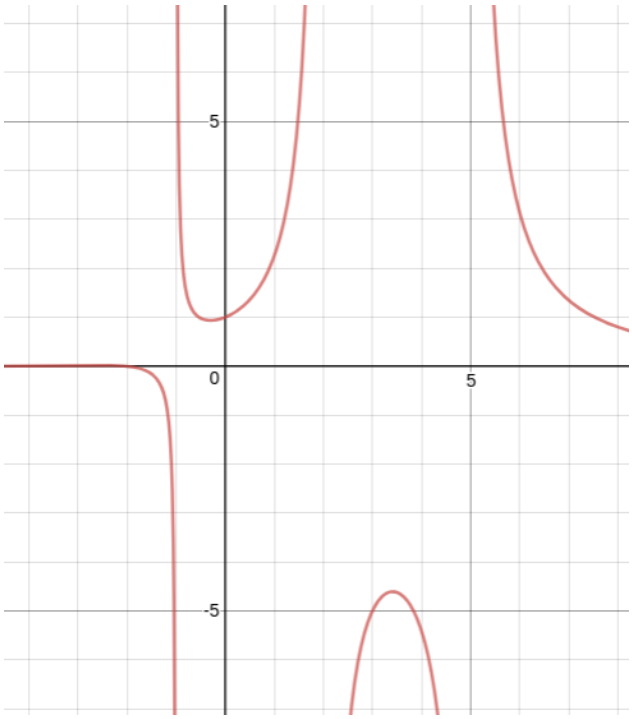
3. Which of the following functions *could* be the graph below?




A. $f(x) = \dfrac{x^3 - 8x^2 + 9x + 18}{x^3 + 6x^2 + 3x - 10}$

B. $f(x) = \dfrac{x^3 - 4x^2 - 36x + 144}{x^3 - 6x^2 + 3x + 10}$

C. $f(x) = \dfrac{x^3 + 5x^2 - 18x - 72}{x^3 - 5x^2 - 8x + 12}$

D. $f(x) = \dfrac{x^3 + 2x^2 - 9x - 18}{x^3 - 7x^2 + 4x + 12}$

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.

$$f(x) = \frac{9x^3 - 18x^2 - 64x - 32}{3x^2 - 8x - 16}$$

A. Oblique Asymptote of $y = 3x + 2$.

B. Horizontal Asymptote at $y = 4.0$

C. Horizontal Asymptote of $y = 3.0$

D. Horizontal Asymptote of $y = 4.0$ and Oblique Asymptote of $y = 3x + 2$

E. Horizontal Asymptote of $y = 3.0$ and Oblique Asymptote of $y = 3x + 2$

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

$$f(x) = \frac{6x^3 - 11x^2 - 17x + 30}{6x^2 - 19x + 15}$$

A. Holes at $x = 1.667$ and $x = 1.5$ with no vertical asymptotes.

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

C. Vertical Asymptotes of $x = 1.667$ and $x = 1.5$ with no holes.

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

E. Vertical Asymptote of $x = 1.667$ and hole at $x = 1.5$

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