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

$$f(x) = \frac{6x^3 - 13x^2 - 13x + 30}{3x^2 + 10x - 25}$$

A. Horizontal Asymptote of $y = 2.0$ and Oblique Asymptote of $y = 2x - 11$

B. Horizontal Asymptote of $y = 2.0$

C. Oblique Asymptote of $y = 2x - 11$.

D. Horizontal Asymptote at $y = -5.0$

E. Horizontal Asymptote of $y = -5.0$ and Oblique Asymptote of $y = 2x - 11$

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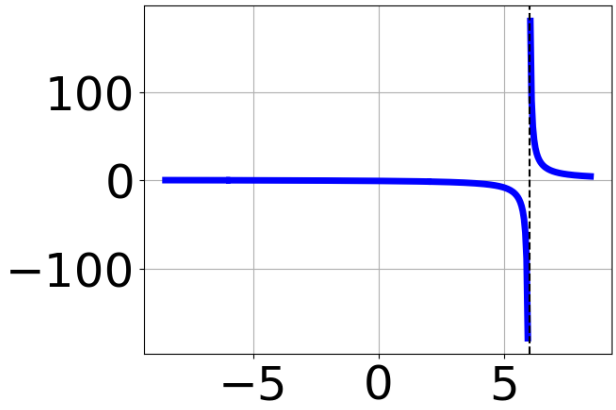
2. Which of the following functions *could* be the graph below?



A. $f(x) = \dfrac{x^3 - 7x^2 + 36}{x^3 + 2x^2 - 36x - 72}$

B. $f(x) = \dfrac{x^3 + 2x^2 - 15x - 36}{x^3 - 2x^2 - 36x + 72}$

C. $f(x) = \dfrac{x^3 - 7x^2 + 36}{x^3 + 2x^2 - 36x - 72}$

D. $f(x) = \dfrac{x^3 + 7x^2 - 36}{x^3 - 2x^2 - 36x + 72}$

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

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

$$f(x) = \frac{2x^2 + x - 6}{12x^3 - 56x^2 + 17x + 60}$$

A. Horizontal Asymptote at $y = -2.000$

B. Horizontal Asymptote of $y = 0$

C. Horizontal Asymptote of $y = 0.167$ and Oblique Asymptote of $y = 6x - 31$

D. Horizontal Asymptote of $y = 0.167$

E. Oblique Asymptote of $y = 6x - 31$.

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

$$f(x) = \frac{6x^3 + 29x^2 - 5x - 100}{8x^2 + 14x - 15}$$

A. Vertical Asymptotes of $x = 0.75$ and $x = -2.5$ with no holes.

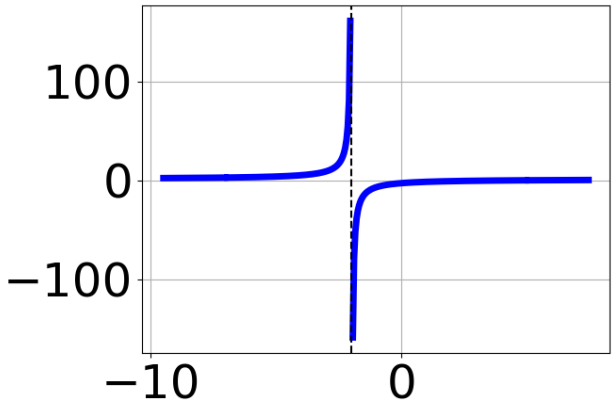
B. Vertical Asymptotes of $x = 0.75$ and $x = 1.667$ with a hole at $x = -2.5$

C. Vertical Asymptote of $x = 0.75$ and hole at $x = -2.5$

D. Holes at $x = 0.75$ and $x = -2.5$ with no vertical asymptotes.

E. Vertical Asymptote of $x = 0.75$ and hole at $x = -2.5$

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



A. $f(x) = \dfrac{x^3 - 4x^2 - 47x + 210}{x^3 + 4x^2 - 31x - 70}$

B. $f(x) = \dfrac{x^3 - 2x^2 - 36x + 72}{x^3 + 4x^2 - 31x - 70}$

C. $f(x) = \dfrac{x^3 + 4x^2 - 47x - 210}{x^3 - 4x^2 - 31x + 70}$

D. $f(x) = \dfrac{x^3 + 4x^2 - 47x - 210}{x^3 - 4x^2 - 31x + 70}$

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

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

$$f(x) = \frac{8x^3 - 30x^2 + 9x + 27}{6x^2 - x - 12}$$

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

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

C. Holes at $x = -1.333$ and $x = 1.5$ with no vertical asymptotes.

D. Vertical Asymptotes of $x = -1.333$ and $x = -0.75$ with a hole at $x = 1.5$

E. Vertical Asymptotes of $x = -1.333$ and $x = 1.5$ with no holes.

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

$$f(x) = \frac{9x^3 - 6x^2 - 23x + 20}{3x^2 + 5x - 12}$$

A. Horizontal Asymptote of $y = 3.0$ and Oblique Asymptote of $y = 3x - 7$

B. Oblique Asymptote of $y = 3x - 7$.

C. Horizontal Asymptote at $y = -3.0$

D. Horizontal Asymptote of $y = 3.0$

E. Horizontal Asymptote of $y = -3.0$ and Oblique Asymptote of $y = 3x - 7$

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

$$f(x) = \frac{8x^3 - 46x^2 + 81x - 45}{8x^2 - 18x + 9}$$

A. Vertical Asymptotes of $x = 0.75$ and $x = 1.25$ with a hole at $x = 1.5$

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

C. Vertical Asymptotes of $x = 0.75$ and $x = 1.5$ with no holes.

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

E. Holes at $x = 0.75$ and $x = 1.5$ with no vertical asymptotes.

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

$$f(x) = \frac{9x^3 + 54x^2 + 80x + 32}{6x^2 + 13x + 6}$$

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

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

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

D. Vertical Asymptotes of $x = -1.5$ and $x = -1.333$ with a hole at $x = -0.667$

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

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

$$f(x) = \frac{10x^3 + 11x^2 - 72x - 45}{-20x^3 - 39x^2 - 90x - 27}$$

A. Horizontal Asymptote of $y = -0.500$

B. Vertical Asymptote of $y = -3$

C. Horizontal Asymptote of $y = 0$

D. None of the above

E. Vertical Asymptote of $y = -0.750$
