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

$$f(x) = \frac{5x^2 + 13x - 6}{20x^3 - 13x^2 - 23x + 10}$$

   A. Horizontal Asymptote at $y = -3.000$

   B. Horizontal Asymptote of $y = 0.250$ and Oblique Asymptote of $y = 4x - 13$

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

   D. Horizontal Asymptote of $y = 0$

   E. Horizontal Asymptote of $y = 0.250$

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

$$f(x) = \frac{16x^3 + 40x^2 + x - 30}{8x^2 + 6x - 9}$$

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

   B. Vertical Asymptote of $x = 2.0$ and hole at $x = 0.75$

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

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

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

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

$$f(x) = \frac{8x^3 + 22x^2 - x - 15}{8x^2 - 18x + 9}$$

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

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

   C. Vertical Asymptote of $x = 1.0$ and hole at $x = 0.75$

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

E. Vertical Asymptotes of $x = 1.5$ and $x = -2.5$ with a hole at $x = 0.75$

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

$$f(x) = \frac{6x^3 - 5x^2 - 61x - 60}{12x^2 + 11x - 15}$$

A. Vertical Asymptotes of $x = 0.75$ and $x = -1.5$ with a hole at $x = -1.667$

B. Vertical Asymptote of $x = 0.75$ and hole at $x = -1.667$

C. Holes at $x = 0.75$ and $x = -1.667$ with no vertical asymptotes.

D. Vertical Asymptotes of $x = 0.75$ and $x = -1.667$ with no holes.

E. Vertical Asymptote of $x = 0.5$ and hole at $x = -1.667$

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

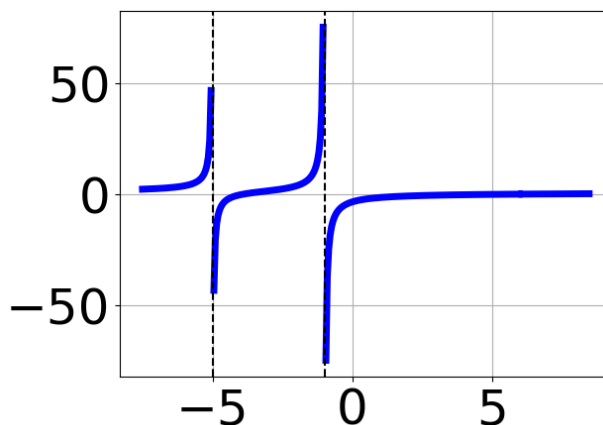$$f(x) = \frac{16x^3 - 16x^2 - 81x - 45}{4x^2 - 13x - 12}$$

A. Horizontal Asymptote of $y = 4.0$

B. Horizontal Asymptote of $y = 4.0$ and Oblique Asymptote of $y = 4x + 9$

C. Horizontal Asymptote at $y = 4.0$

D. Horizontal Asymptote of $y = 4.0$ and Oblique Asymptote of $y = 4x + 9$

E. Oblique Asymptote of $y = 4x + 9$.

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

$$f(x) = \frac{6x^3 + 41x^2 + 89x + 60}{-4x^3 - 28x^2 - 74x - 60}$$

A. Vertical Asymptote of $y = -3$

B. Vertical Asymptote of $y = -2.000$

C. Horizontal Asymptote of $y = -1.500$

D. Horizontal Asymptote of $y = 0$

E. None of the above

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

A. $f(x) = \dfrac{x^3 - 6x^2 - 16x + 96}{x^3 - 31x - 30}$

B. $f(x) = \dfrac{x^3 + 6x^2 - 16x - 96}{x^3 - 31x + 30}$

C. $f(x) = \dfrac{x^3 + 6x^2 - 16x - 96}{x^3 - 31x + 30}$

D. $f(x) = \dfrac{x^3 + 6x^2 - 16x - 96}{x^3 - 31x - 30}$

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

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

$$f(x) = \frac{12x^3 + 13x^2 - 37x - 30}{4x^2 - 9x - 9}$$

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

B. Horizontal Asymptote at $y = 3.0$

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

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

E. Horizontal Asymptote of $y = 3.0$

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9. Which of the following functions *could* be the graph below?
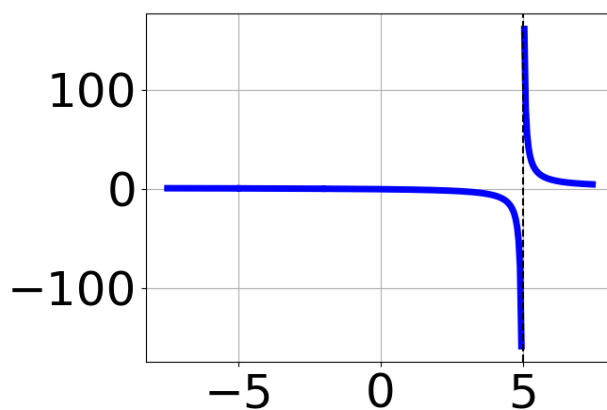
A. $f(x) = \dfrac{x^3 + 10x^2 + 31x + 30}{x^3 + 2x^2 - 25x - 50}$

B. $f(x) = \dfrac{x^3 - 10x^2 + 31x - 30}{x^3 - 2x^2 - 25x + 50}$

C. $f(x) = \dfrac{x^3 + x^2 - 30x - 72}{x^3 + 2x^2 - 25x - 50}$

D. $f(x) = \dfrac{x^3 - 10x^2 + 31x - 30}{x^3 - 2x^2 - 25x + 50}$

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

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

$$f(x) = \frac{9x^3 - 48x^2 + 73x - 30}{9x^2 + 9x - 10}$$

A. Vertical Asymptotes of $x = -1.667$ and $x = 0.667$ with no holes.

B. Vertical Asymptote of $x = 1.0$ and hole at $x = 0.667$

C. Vertical Asymptote of $x = -1.667$ and hole at $x = 0.667$

D. Holes at $x = -1.667$ and $x = 0.667$ with no vertical asymptotes.

E. Vertical Asymptotes of $x = -1.667$ and $x = 1.667$ with a hole at $x = 0.667$