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

$$f(x) = \frac{6x^2 - 19x - 20}{12x^3 + 16x^2 - 31x - 30}$$

   A. Horizontal Asymptote of $y = 0.500$

   B. Oblique Asymptote of $y = 2x + 9$.

   C. Horizontal Asymptote of $y = 0.500$ and Oblique Asymptote of $y = 2x + 9$

   D. Horizontal Asymptote of $y = 0$

   E. Horizontal Asymptote at $y = 4.000$

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

$$f(x) = \frac{4x^3 + 8x^2 - 9x - 18}{8x^2 - 22x + 15}$$

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

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

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

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

   E. Vertical Asymptote of $x = 0.5$ and hole at $x = 1.5$

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

$$f(x) = \frac{9x^3 + 12x^2 - 20x - 16}{12x^2 - 7x - 12}$$

   A. Holes at $x = -0.75$ and $x = 1.333$ with no vertical asymptotes.

   B. Vertical Asymptote of $x = 0.75$ and hole at $x = 1.333$

   C. Vertical Asymptotes of $x = -0.75$ and $x = 1.333$ with no holes.

   D. Vertical Asymptote of $x = -0.75$ and hole at $x = 1.333$

   E. Vertical Asymptotes of $x = -0.75$ and $x = -0.667$ with a hole at $x = 1.333$

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

$$f(x) = \frac{16x^3 - 16x^2 - 81x - 45}{16x^2 - 9}$$

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

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

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

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

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

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

$$f(x) = \frac{9x^3 + 18x^2 - 4x - 8}{3x^2 - 8x + 4}$$

   A. Horizontal Asymptote of $y = 2.0$ and Oblique Asymptote of $y = 3x + 14$

   B. Horizontal Asymptote of $y = 3.0$ and Oblique Asymptote of $y = 3x + 14$

   C. Horizontal Asymptote of $y = 3.0$

   D. Horizontal Asymptote at $y = 2.0$
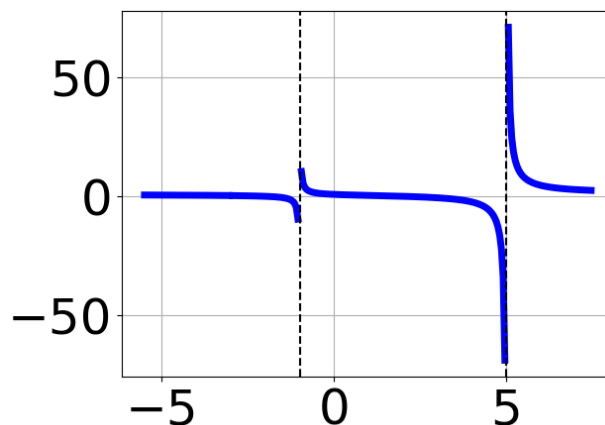
   E. Oblique Asymptote of $y = 3x + 14$.

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

function below.

$$f(x) = \frac{3x^2 - x - 10}{15x^3 - 26x^2 - 67x + 30}$$

A. Horizontal Asymptote of $y = 0.200$ and Oblique Asymptote of $y = 5x - 7$

B. Horizontal Asymptote at $y = 2.000$

C. Horizontal Asymptote of $y = 0.200$

D. Horizontal Asymptote of $y = 0$

E. Oblique Asymptote of $y = 5x - 7$.

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

A. $f(x) = \dfrac{x^3 + 5x^2 - 4x - 20}{x^3 - 1x^2 - 17x - 15}$

B. $f(x) = \dfrac{x^3 - 3x^2 - 4x + 12}{x^3 + x^2 - 17x + 15}$

C. $f(x) = \dfrac{x^3 + 3x^2 - 4x - 12}{x^3 - 1x^2 - 17x - 15}$

D. $f(x) = \dfrac{x^3 - 3x^2 - 4x + 12}{x^3 + x^2 - 17x + 15}$

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

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

$$f(x) = \frac{12x^3 + 25x^2 - 48x - 45}{4x^2 + 19x + 12}$$

A. Horizontal Asymptote of $y = 3.0$ and Oblique Asymptote of $y = 3x - 8$

B. Horizontal Asymptote of $y = 3.0$

C. Horizontal Asymptote at $y = -4.0$

D. Horizontal Asymptote of $y = -4.0$ and Oblique Asymptote of $y = 3x - 8$

E. Oblique Asymptote of $y = 3x - 8$.

9. Which of the following functions *could* be the graph below?
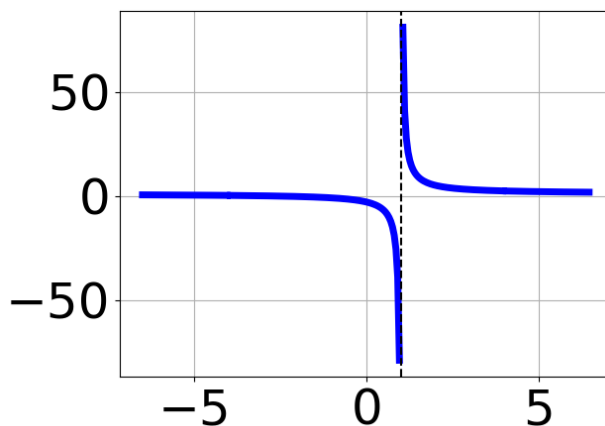
A. $f(x) = \dfrac{x^3 + 6x^2 + 11x + 6}{x^3 - 1x^2 - 16x + 16}$

B. $f(x) = \dfrac{x^3 - 3x^2 - 16x + 48}{x^3 + x^2 - 16x - 16}$

C. $f(x) = \dfrac{x^3 + 3x^2 - 16x - 48}{x^3 - 1x^2 - 16x + 16}$

D. $f(x) = \dfrac{x^3 - 3x^2 - 16x + 48}{x^3 + x^2 - 16x - 16}$

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

10. Determine the vertical asymptotes and holes in the rational function below.
$$f(x) = \frac{12x^3 + 53x^2 + 57x + 18}{16x^2 + 32x + 15}$$

A. Vertical Asymptotes of $x = -1.25$ and $x = -0.75$ with no holes.

B. Vertical Asymptotes of $x = -1.25$ and $x = -0.667$ with a hole at $x = -0.75$

C. Holes at $x = -1.25$ and $x = -0.75$ with no vertical asymptotes.

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

E. Vertical Asymptote of $x = -1.25$ and hole at $x = -0.75$