

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

$$f(x) = \frac{4x^2 + 25x + 25}{8x^3 + 6x^2 - 65x - 75}$$

- A. Horizontal Asymptote at $y = -5.000$
 - B. Horizontal Asymptote of $y = 0.500$
 - C. Horizontal Asymptote of $y = 0$
 - D. Horizontal Asymptote of $y = 0.500$ and Oblique Asymptote of $y = 2x - 11$
 - E. Oblique Asymptote of $y = 2x - 11$.
-

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

$$f(x) = \frac{4x^3 + 12x^2 - x - 15}{8x^2 + 22x + 15}$$

- A. Vertical Asymptote of $x = -1.25$ and hole at $x = -1.5$
 - B. Vertical Asymptotes of $x = -1.25$ and $x = -2.5$ with a hole at $x = -1.5$
 - C. Vertical Asymptote of $x = 0.5$ and hole at $x = -1.5$
 - D. Vertical Asymptotes of $x = -1.25$ and $x = -1.5$ with no holes.
 - E. Holes at $x = -1.25$ and $x = -1.5$ with no vertical asymptotes.
-

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

$$f(x) = \frac{16x^3 + 64x^2 + 79x + 30}{12x^2 + 7x - 10}$$

- A. Vertical Asymptote of $x = 1.333$ and hole at $x = -1.25$
- B. Vertical Asymptotes of $x = 0.667$ and $x = -0.75$ with a hole at $x = -1.25$
- C. Holes at $x = 0.667$ and $x = -1.25$ with no vertical asymptotes.

- D. Vertical Asymptote of $x = 0.667$ and hole at $x = -1.25$
 - E. Vertical Asymptotes of $x = 0.667$ and $x = -1.25$ with no holes.
-

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

$$f(x) = \frac{9x^3 - 36x^2 - 4x + 16}{12x^2 - 23x + 10}$$

- A. Vertical Asymptote of $x = 1.25$ and hole at $x = 0.667$
 - B. Vertical Asymptote of $x = 0.75$ and hole at $x = 0.667$
 - C. Vertical Asymptotes of $x = 1.25$ and $x = -0.667$ with a hole at $x = 0.667$
 - D. Holes at $x = 1.25$ and $x = 0.667$ with no vertical asymptotes.
 - E. Vertical Asymptotes of $x = 1.25$ and $x = 0.667$ with no holes.
-

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

$$f(x) = \frac{8x^3 + 10x^2 - 13x - 15}{4x^2 - 17x + 15}$$

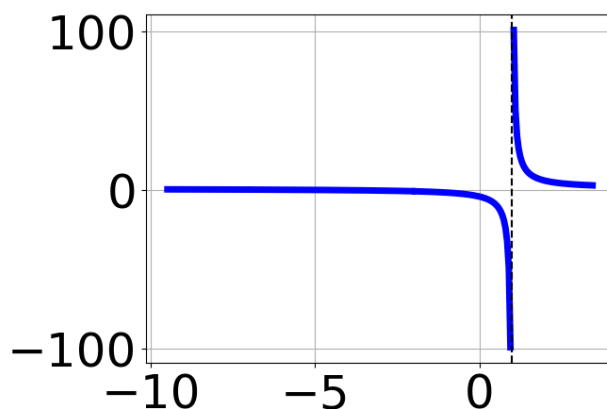
- A. Horizontal Asymptote at $y = 3.0$
 - B. Horizontal Asymptote of $y = 2.0$ and Oblique Asymptote of $y = 2x + 11$
 - C. Horizontal Asymptote of $y = 3.0$ and Oblique Asymptote of $y = 2x + 11$
 - D. Oblique Asymptote of $y = 2x + 11$.
 - E. Horizontal Asymptote of $y = 2.0$
-

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

$$f(x) = \frac{6x^3 - 17x^2 - 18x + 45}{4x^3 - 2x^2 - 27x + 45}$$

- A. Vertical Asymptote of $y = -2.500$
- B. Horizontal Asymptote of $y = 0$
- C. Horizontal Asymptote of $y = 1.500$
- D. None of the above
- E. Vertical Asymptote of $y = 3$

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



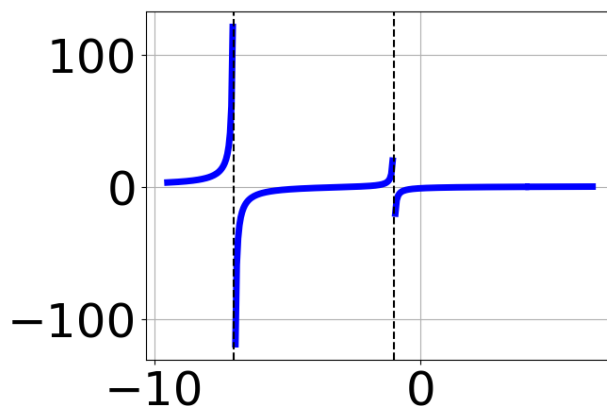
- A. $f(x) = \frac{x^3 - 13x^2 + 50x - 56}{x^3 - 8x^2 + 5x + 14}$
- B. $f(x) = \frac{x^3 - 13x^2 + 50x - 56}{x^3 - 8x^2 + 5x + 14}$
- C. $f(x) = \frac{x^3 + 13x^2 + 50x + 56}{x^3 + 8x^2 + 5x - 14}$
- D. $f(x) = \frac{x^3 + 5x^2 - 26x - 120}{x^3 + 8x^2 + 5x - 14}$
- E. None of the above are possible equations for the graph.

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

$$f(x) = \frac{8x^3 + 54x^2 + 103x + 60}{2x^2 + 13x + 15}$$

- A. Horizontal Asymptote at $y = -5.0$
- B. Horizontal Asymptote of $y = -5.0$ and Oblique Asymptote of $y = 4x + 1$
- C. Oblique Asymptote of $y = 4x + 1$.
- D. Horizontal Asymptote of $y = 4.0$
- E. Horizontal Asymptote of $y = 4.0$ and Oblique Asymptote of $y = 4x + 1$

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



- A. $f(x) = \frac{x^3 + 3x^2 - 10x - 24}{x^3 - 4x^2 - 25x + 28}$
- B. $f(x) = \frac{x^3 - 3x^2 - 10x + 24}{x^3 + 4x^2 - 25x - 28}$
- C. $f(x) = \frac{x^3 + 6x^2 - x - 30}{x^3 + 4x^2 - 25x - 28}$
- D. $f(x) = \frac{x^3 + 3x^2 - 10x - 24}{x^3 - 4x^2 - 25x + 28}$
- E. None of the above are possible equations for the graph.

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

below.

$$f(x) = \frac{6x^3 - 41x^2 + 89x - 60}{6x^2 + 7x - 20}$$

- A. Vertical Asymptote of $x = 1.0$ and hole at $x = 1.333$
 - B. Vertical Asymptotes of $x = -2.5$ and $x = 2.5$ with a hole at $x = 1.333$
 - C. Holes at $x = -2.5$ and $x = 1.333$ with no vertical asymptotes.
 - D. Vertical Asymptotes of $x = -2.5$ and $x = 1.333$ with no holes.
 - E. Vertical Asymptote of $x = -2.5$ and hole at $x = 1.333$
-