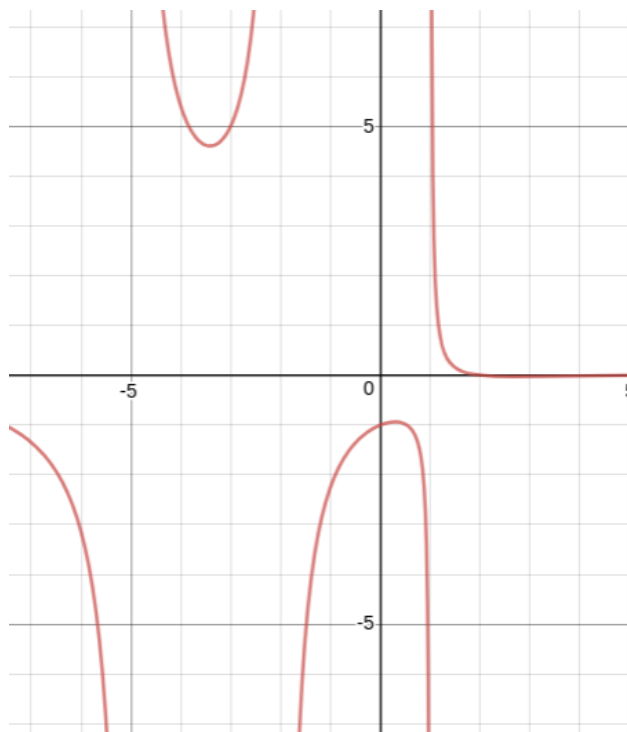


1. Determine the vertical asymptotes and holes in the rational function below.

$$f(x) = \frac{12x^3 + 65x^2 + 102x + 45}{12x^2 + 11x - 15}$$

- A. Vertical Asymptotes of $x = 0.75$ and $x = -0.75$ with a hole at $x = -1.667$
- B. Vertical Asymptotes of $x = 0.75$ and $x = -1.667$ with no holes.
- C. Vertical Asymptote of $x = 1.0$ and hole at $x = -1.667$
- D. Vertical Asymptote of $x = 0.75$ and hole at $x = -1.667$
- E. Holes at $x = 0.75$ and $x = -1.667$ with no vertical asymptotes.
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2. Which of the following functions *could* be the graph below?



- A. $f(x) = \frac{x^3 - 4x^2 - 36x + 144}{x^3 - 6x^2 + 3x + 10}$
- B. $f(x) = \frac{x^3 - 4x^2 - 25x + 100}{x^3 - 5x^2 - 8x + 12}$

- C. $f(x) = \frac{x^3 + x^2 - 30x - 72}{x^3 + 6x^2 + 3x - 10}$
- D. $f(x) = \frac{x^3 - 2x^2 - 19x + 20}{x^3 - 7x^2 + 4x + 12}$
- E. None of the above are possible equations for the graph.
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3. Determine the vertical asymptotes and holes in the rational function below.

$$f(x) = \frac{12x^3 - 37x^2 + 37x - 12}{9x^2 - 6x - 8}$$

- A. Vertical Asymptote of $x = 1.333$ and hole at $x = 1.333$
- B. Holes at $x = -0.667$ and $x = 1.333$ with no vertical asymptotes.
- C. Vertical Asymptotes of $x = -0.667$ and $x = 0.75$ with a hole at $x = 1.333$
- D. Vertical Asymptote of $x = -0.667$ and hole at $x = 1.333$
- E. Vertical Asymptotes of $x = -0.667$ and $x = 1.333$ with no holes.
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4. Determine the horizontal and/or oblique asymptotes in the rational function below.

$$f(x) = \frac{6x^3 + 7x^2 - 28x - 20}{2x^2 + 15x + 25}$$

- A. Oblique Asymptote of $y = 3x - 19$.
- B. Horizontal Asymptote of $y = -5.0$ and Oblique Asymptote of $y = 3x - 19$
- C. Horizontal Asymptote of $y = 3.0$ and Oblique Asymptote of $y = 3x - 19$
- D. Horizontal Asymptote of $y = 3.0$
- E. Horizontal Asymptote at $y = -5.0$

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

$$f(x) = \frac{20x^3 + 46x^2 - 81x - 36}{8x^3 - 30x^2 + 9x + 27}$$

- A. None of the above
 - B. Horizontal Asymptote of $y = 0$
 - C. Vertical Asymptote of $y = -0.800$
 - D. Horizontal Asymptote of $y = 0.400$
 - E. Vertical Asymptote of $y = 3$
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