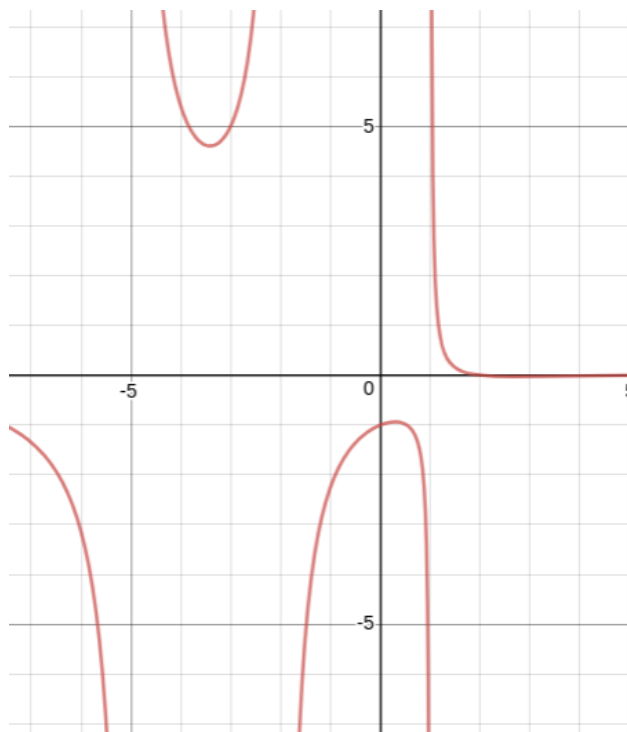


1. Determine the vertical asymptotes and holes in the rational function below.

$$f(x) = \frac{16x^3 - 48x^2 - 25x + 75}{16x^2 - 32x + 15}$$

- A. Vertical Asymptotes of  $x = 0.75$  and  $x = 1.25$  with no holes.  
B. Holes at  $x = 0.75$  and  $x = 1.25$  with no vertical asymptotes.  
C. Vertical Asymptotes of  $x = 0.75$  and  $x = -1.25$  with a hole at  $x = 1.25$   
D. Vertical Asymptote of  $x = 1.0$  and hole at  $x = 1.25$   
E. Vertical Asymptote of  $x = 0.75$  and hole at  $x = 1.25$
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2. Which of the following functions *could* be the graph below?



- A.  $f(x) = \frac{x^3 + 4x^2 - 17x - 60}{x^3 + 5x^2 + 2x - 8}$   
B.  $f(x) = \frac{x^3 + 7x^2 + 7x - 15}{x^3 - 6x^2 + 3x + 10}$

- C.  $f(x) = \frac{x^3 + x^2 - 26x + 24}{x^3 + 3x^2 - 6x - 8}$
- D.  $f(x) = \frac{x^3 + 4x^2 - 15x - 18}{x^3 + 6x^2 + 3x - 10}$
- E. None of the above are possible equations for the graph.
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3. Determine the horizontal and/or oblique asymptotes in the rational function below.

$$f(x) = \frac{8x^3 - 28x^2 - 10x + 12}{8x^3 + 22x^2 - x - 15}$$

- A. None of the above
- B. Horizontal Asymptote of  $y = 0$
- C. Vertical Asymptote of  $y = 2.000$
- D. Vertical Asymptote of  $y = -1$
- E. Horizontal Asymptote of  $y = 1.000$
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4. Determine the horizontal and/or oblique asymptotes in the rational function below.

$$f(x) = \frac{12x^3 - 19x^2 - 3x + 10}{4x^2 - 13x + 10}$$

- A. Horizontal Asymptote of  $y = 3.0$  and Oblique Asymptote of  $y = 3x + 5$
- B. Oblique Asymptote of  $y = 3x + 5$ .
- C. Horizontal Asymptote at  $y = 2.0$
- D. Horizontal Asymptote of  $y = 2.0$  and Oblique Asymptote of  $y = 3x + 5$
- E. Horizontal Asymptote of  $y = 3.0$

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

$$f(x) = \frac{6x^3 + x^2 - 30x - 25}{6x^2 + x - 15}$$

- A. Vertical Asymptote of  $x = 1.5$  and hole at  $x = -1.667$
  - B. Vertical Asymptotes of  $x = 1.5$  and  $x = 2.5$  with a hole at  $x = -1.667$
  - C. Holes at  $x = 1.5$  and  $x = -1.667$  with no vertical asymptotes.
  - D. Vertical Asymptote of  $x = 1.0$  and hole at  $x = -1.667$
  - E. Vertical Asymptotes of  $x = 1.5$  and  $x = -1.667$  with no holes.
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