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

$$f(x) = \frac{6x^3 - 23x^2 + 9x + 18}{3x^2 - 10x - 8}$$

   A. Horizontal Asymptote at $y = 4.0$

   B. Horizontal Asymptote of $y = 2.0$ and Oblique Asymptote of $y = 2x - 1$

   C. Horizontal Asymptote of $y = 4.0$ and Oblique Asymptote of $y = 2x - 1$

   D. Horizontal Asymptote of $y = 2.0$

   E. Oblique Asymptote of $y = 2x - 1$.

---

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

$$f(x) = \frac{6x^3 + 23x^2 - 16x - 48}{3x^2 + 13x + 12}$$

   A. Horizontal Asymptote of $y = 2.0$ and Oblique Asymptote of $y = 2x - 1$

   B. Horizontal Asymptote at $y = -3.0$

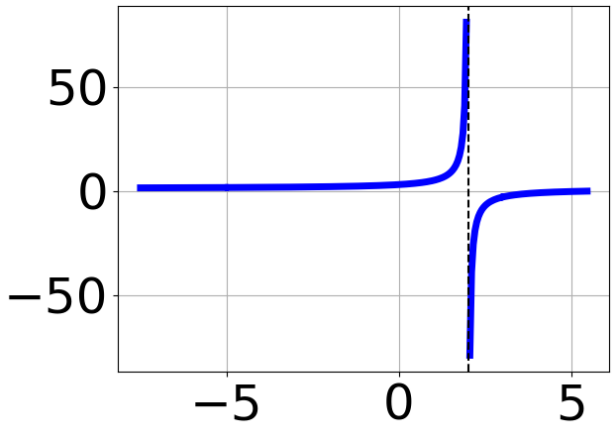
   C. Horizontal Asymptote of $y = -3.0$ and Oblique Asymptote of $y = 2x - 1$

   D. Oblique Asymptote of $y = 2x - 1$.

   E. Horizontal Asymptote of $y = 2.0$

---

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



A. $f(x) = \dfrac{x^3 + 4x^2 - 27x - 90}{x^3 - 19x - 30}$

B. $f(x) = \dfrac{x^3 - 4x^2 - 27x + 90}{x^3 - 19x + 30}$

C. $f(x) = \dfrac{x^3 + 4x^2 - 27x - 90}{x^3 - 19x - 30}$

D. $f(x) = \dfrac{x^3 - 1x^2 - 24x - 36}{x^3 - 19x + 30}$

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

---

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

$$f(x) = \frac{12x^3 + 25x^2 - 18x - 40}{12x^2 + 25x + 12}$$

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

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

C. Vertical Asymptotes of $x = -0.75$ and $x = 1.25$ with a hole at $x = -1.333$

D. Vertical Asymptote of $x = 1.0$ and hole at $x = -1.333$

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

---

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

$$f(x) = \frac{-16x^3 - 12x^2 + 9x + 36}{12x^3 + 49x^2 - 2x - 24}$$

A. Vertical Asymptote of $y = -4$

B. Horizontal Asymptote of $y = 0$

C. Vertical Asymptote of $y = 0.750$

D. None of the above

E. Horizontal Asymptote of $y = -0.750$

---

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

$$f(x) = \frac{9x^3 - 30x^2 - 11x + 60}{9x^2 - 27x + 20}$$

A. Vertical Asymptote of $x = 1.0$ and hole at $x = 1.667$

B. Holes at $x = 1.333$ and $x = 1.667$ with no vertical asymptotes.

C. Vertical Asymptote of $x = 1.333$ and hole at $x = 1.667$

D. Vertical Asymptotes of $x = 1.333$ and $x = 1.667$ with no holes.

E. Vertical Asymptotes of $x = 1.333$ and $x = -1.333$ with a hole at $x = 1.667$

---

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

$$f(x) = \frac{3x^2 - 10x - 25}{9x^3 - 19x + 10}$$

A. Horizontal Asymptote of $y = 0$

B. Horizontal Asymptote of $y = 3.000$

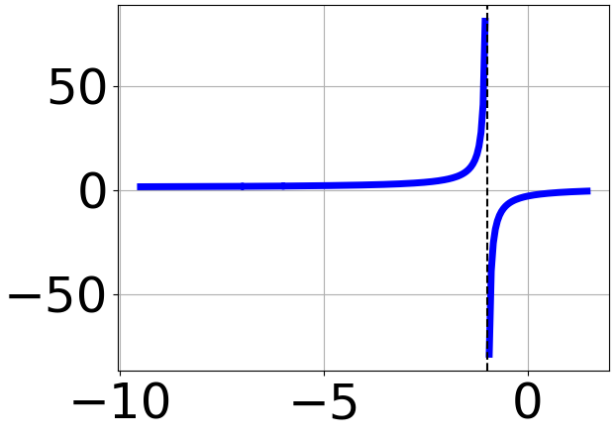
C. Horizontal Asymptote at $y = 5.000$

D. Horizontal Asymptote of $y = 3.000$ and Oblique Asymptote of $y = 3x + 10$

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

---

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



A. $f(x) = \dfrac{x^3 + 10x^2 + 3x - 126}{x^3 + 14x^2 + 55x + 42}$

B. $f(x) = \dfrac{x^3 - 10x^2 + 3x + 126}{x^3 - 14x^2 + 55x - 42}$

C. $f(x) = \dfrac{x^3 - 10x^2 + 3x + 126}{x^3 - 14x^2 + 55x - 42}$

D. $f(x) = \dfrac{x^3 - 5x^2 - 18x + 72}{x^3 + 14x^2 + 55x + 42}$

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

---

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

$$f(x) = \frac{8x^3 - 42x^2 + 67x - 30}{8x^2 + 6x - 9}$$

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 $x = 0.75$

---

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

$$f(x) = \frac{6x^3 - 25x^2 + 29x - 10}{4x^2 - 4x - 15}$$

A. Vertical Asymptote of $x = -1.5$ and hole at $x = 2.5$

B. Vertical Asymptote of $x = 1.5$ and hole at $x = 2.5$

C. Vertical Asymptotes of $x = -1.5$ and $x = 2.5$ with no holes.

D. Holes at $x = -1.5$ and $x = 2.5$ with no vertical asymptotes.

E. Vertical Asymptotes of $x = -1.5$ and $x = 0.667$ with a hole at $x = 2.5$
