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

$$f(x) = \frac{8x^3 + 18x^2 - 15x - 25}{2x^2 + x - 10}$$
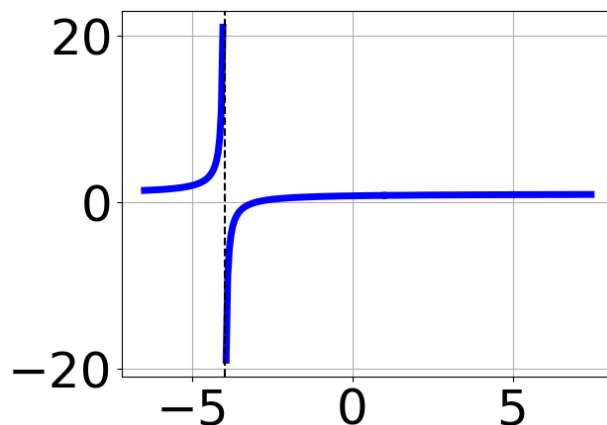
   A. Horizontal Asymptote at $y = 2.0$

   B. Horizontal Asymptote of $y = 2.0$ and Oblique Asymptote of $y = 4x + 7$

   C. Oblique Asymptote of $y = 4x + 7$.

   D. Horizontal Asymptote of $y = 4.0$

   E. Horizontal Asymptote of $y = 4.0$ and Oblique Asymptote of $y = 4x + 7$

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

$$f(x) = \frac{30x^3 - 61x^2 - 18x + 40}{20x^3 + 57x^2 - 62x - 40}$$

   A. Vertical Asymptote of $y = 2$

   B. Horizontal Asymptote of $y = 0$

   C. None of the above

   D. Horizontal Asymptote of $y = 1.500$

   E. Vertical Asymptote of $y = -1.250$

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

A. $f(x) = \dfrac{x^3 + 8x^2 + x - 42}{x^3 - 2x^2 - 19x + 20}$

B. $f(x) = \dfrac{x^3 + 3x^2 - 13x - 15}{x^3 + 2x^2 - 19x - 20}$

C. $f(x) = \dfrac{x^3 - 3x^2 - 13x + 15}{x^3 - 2x^2 - 19x + 20}$

D. $f(x) = \dfrac{x^3 + 3x^2 - 13x - 15}{x^3 + 2x^2 - 19x - 20}$

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

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4. Determine the horizontal and/or oblique asymptotes in the rational function below.
$$f(x) = \frac{8x^3 + 46x^2 + 41x - 60}{4x^2 + 17x - 15}$$

A. Oblique Asymptote of $y = 2x + 3$.

B. Horizontal Asymptote of $y = -5.0$ and Oblique Asymptote of $y = 2x + 3$

C. Horizontal Asymptote of $y = 2.0$ and Oblique Asymptote of $y = 2x + 3$

D. Horizontal Asymptote of $y = 2.0$

E. Horizontal Asymptote at $y = -5.0$

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

$$f(x) = \frac{9x^3 + 48x^2 + 73x + 30}{6x^2 - 5x - 25}$$

A. Holes at $x = 2.5$ and $x = -1.667$ with no vertical asymptotes.

B. Vertical Asymptote of $x = 2.5$ and hole at $x = -1.667$

C. Vertical Asymptotes of $x = 2.5$ and $x = -0.667$ with a hole at $x = -1.667$

D. Vertical Asymptote of $x = 1.5$ and hole at $x = -1.667$

E. Vertical Asymptotes of $x = 2.5$ and $x = -1.667$ with no holes.

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

$$f(x) = \frac{9x^3 - 30x^2 + 31x - 10}{6x^2 + 11x - 10}$$

A. Vertical Asymptote of $x = -2.5$ and hole at $x = 0.667$

B. Vertical Asymptotes of $x = -2.5$ and $x = 1.667$ with a hole at $x = 0.667$

C. Vertical Asymptote of $x = 1.5$ and hole at $x = 0.667$

D. Holes at $x = -2.5$ and $x = 0.667$ with no vertical asymptotes.

E. Vertical Asymptotes of $x = -2.5$ and $x = 0.667$ with no holes.

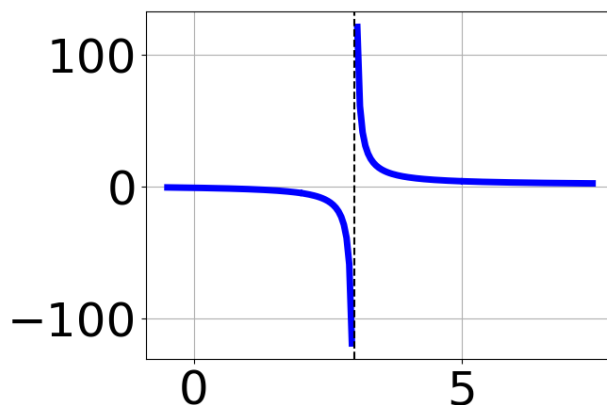7. Determine the horizontal and/or oblique asymptotes in the rational function below.

$$f(x) = \frac{3x^2 - 11x - 20}{12x^3 - 17x^2 - 104x - 80}$$

A. Horizontal Asymptote of $y = 0.250$ and Oblique Asymptote of $y = 4x + 9$

B. Horizontal Asymptote at $y = 5.000$

C. Horizontal Asymptote of $y = 0$

D. Horizontal Asymptote of $y = 0.250$

E. Oblique Asymptote of $y = 4x + 9$.

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

A. $f(x) = \dfrac{x^3 + 4x^2 - 11x - 30}{x^3 + 10x^2 + 31x + 30}$

B. $f(x) = \dfrac{x^3 - 4x^2 - 11x + 30}{x^3 - 10x^2 + 31x - 30}$

C. $f(x) = \dfrac{x^3 + 13x^2 + 54x + 72}{x^3 - 10x^2 + 31x - 30}$

D. $f(x) = \dfrac{x^3 + 4x^2 - 11x - 30}{x^3 + 10x^2 + 31x + 30}$

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

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

$$f(x) = \frac{16x^3 + 64x^2 + 79x + 30}{16x^2 - 9}$$

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

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

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

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

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

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10. Determine the vertical asymptotes and holes in the rational function below.
$$f(x) = \frac{6x^3 - 25x^2 - 11x + 60}{9x^2 - 25}$$

A. Vertical Asymptotes of $x = -1.667$ and $x = 1.667$ with no holes.

B. Vertical Asymptote of $x = 0.667$ and hole at $x = 1.667$

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

D. Holes at $x = -1.667$ and $x = 1.667$ with no vertical asymptotes.

E. Vertical Asymptotes of $x = -1.667$ and $x = -1.5$ with a hole at $x = 1.667$