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

$$f(x) = \frac{6x^3 + 7x^2 - 43x - 30}{8x^2 - 30x + 25}$$

   A. Vertical Asymptotes of $x = 1.25$ and $x = -0.667$ with a hole at $x = 2.5$

   B. Holes at $x = 1.25$ and $x = 2.5$ with no vertical asymptotes.

   C. Vertical Asymptote of $x = 1.25$ and hole at $x = 2.5$

   D. Vertical Asymptote of $x = 0.75$ and hole at $x = 2.5$

   E. Vertical Asymptotes of $x = 1.25$ and $x = 2.5$ with no holes.

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

$$f(x) = \frac{8x^3 + 34x^2 - 7x - 60}{16x^2 - 32x + 15}$$

   A. Vertical Asymptotes of $x = 0.75$ and $x = 1.25$ with no holes.

   B. Vertical Asymptote of $x = 0.75$ and hole at $x = 1.25$

   C. Vertical Asymptote of $x = 0.5$ and hole at $x = 1.25$

   D. Holes at $x = 0.75$ and $x = 1.25$ with no vertical asymptotes.

   E. Vertical Asymptotes of $x = 0.75$ and $x = -1.5$ with a hole at $x = 1.25$

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

$$f(x) = \frac{6x^3 - 49x^2 + 125x - 100}{6x^3 - 5x^2 - 45x + 100}$$

   A. Vertical Asymptote of $y = -2.500$

   B. Horizontal Asymptote of $y = 1.000$

   C. Vertical Asymptote of $y = 4$

D. None of the above

E. Horizontal Asymptote of $y = 0$

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

$$f(x) = \frac{8x^3 - 14x^2 - 35x + 50}{6x^2 - 19x + 10}$$

A. Vertical Asymptote of $x = 1.333$ and hole at $x = 2.5$

B. Vertical Asymptotes of $x = 0.667$ and $x = 1.25$ with a hole at $x = 2.5$

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

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

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

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

$$f(x) = \frac{8x^3 - 46x^2 + 81x - 45}{8x^2 - 18x + 9}$$

A. Holes at $x = 0.75$ and $x = 1.5$ with no vertical asymptotes.

B. Vertical Asymptotes of $x = 0.75$ and $x = 1.5$ with no holes.

C. Vertical Asymptotes of $x = 0.75$ and $x = 1.25$ with a hole at $x = 1.5$

D. Vertical Asymptote of $x = 0.75$ and hole at $x = 1.5$

E. Vertical Asymptote of $x = 1.0$ and hole at $x = 1.5$

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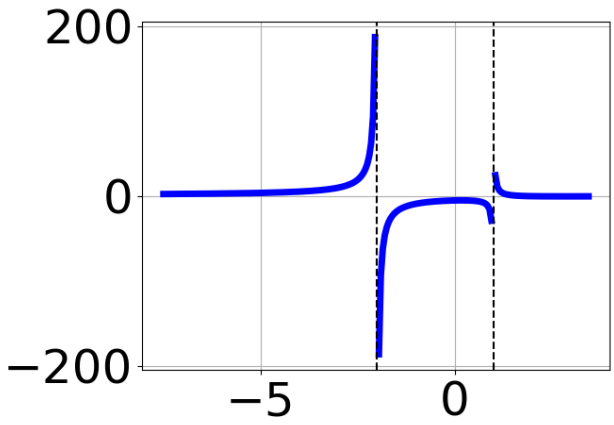
6. Which of the following functions *could* be the graph below?



A. $f(x) = \dfrac{x^3 - 2x^2 - 25x + 50}{x^3 + 6x^2 + 3x - 10}$

B. $f(x) = \dfrac{x^3 + 2x^2 - 25x - 50}{x^3 - 6x^2 + 3x + 10}$

C. $f(x) = \dfrac{x^3 - 11x^2 + 38x - 40}{x^3 + 6x^2 + 3x - 10}$

D. $f(x) = \dfrac{x^3 + 2x^2 - 25x - 50}{x^3 - 6x^2 + 3x + 10}$

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

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

$$f(x) = \frac{6x^3 - 17x^2 - 3x + 20}{3x^2 - 19x + 20}$$

A. Horizontal Asymptote at $y = 5.0$

B. Horizontal Asymptote of $y = 5.0$ and Oblique Asymptote of $y = 2x + 7$

C. Horizontal Asymptote of $y = 2.0$ and Oblique Asymptote of $y = 2x + 7$

D. Oblique Asymptote of $y = 2x + 7$.

E. Horizontal Asymptote of $y = 2.0$

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

$$f(x) = \frac{30x^3 - 119x^2 - 24x + 80}{-24x^3 - 28x^2 + 42x - 40}$$

A. Horizontal Asymptote of $y = -1.250$

B. Vertical Asymptote of $y = 0.500$

C. Vertical Asymptote of $y = 4$

D. None of the above

E. Horizontal Asymptote of $y = 0$

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

$$f(x) = \frac{8x^3 - 2x^2 - 43x + 30}{4x^2 + 9x - 9}$$

A. Horizontal Asymptote of $y = 2.0$ and Oblique Asymptote of $y = 2x - 5$

B. Oblique Asymptote of $y = 2x - 5$.

C. Horizontal Asymptote at $y = -3.0$

D. Horizontal Asymptote of $y = -3.0$ and Oblique Asymptote of $y = 2x - 5$

E. Horizontal Asymptote of $y = 2.0$

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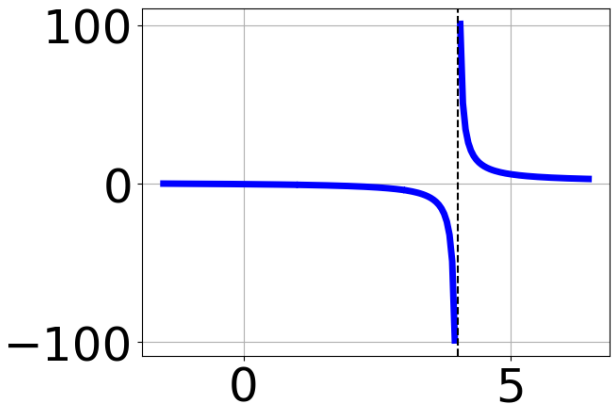
10. Which of the following functions *could* be the graph below?



A. $f(x) = \dfrac{x^3 - 3x^2 - x + 3}{x^3 - 8x^2 + 19x - 12}$

B. $f(x) = \dfrac{x^3 + 3x^2 - x - 3}{x^3 + 8x^2 + 19x + 12}$

C. $f(x) = \dfrac{x^3 - 7x^2 + 4x + 12}{x^3 - 8x^2 + 19x - 12}$

D. $f(x) = \dfrac{x^3 + 3x^2 - x - 3}{x^3 + 8x^2 + 19x + 12}$

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