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

$$f(x) = \frac{12x^3 - 1x^2 - 80x - 75}{3x^2 - 7x - 20}$$

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

B. Horizontal Asymptote of $y = 4.000$ and Oblique Asymptote of $y = 4x + 9$

C. Horizontal Asymptote of $y = 0$

D. Horizontal Asymptote of $y = 4.000$

E. Horizontal Asymptote at $y = 4.000$

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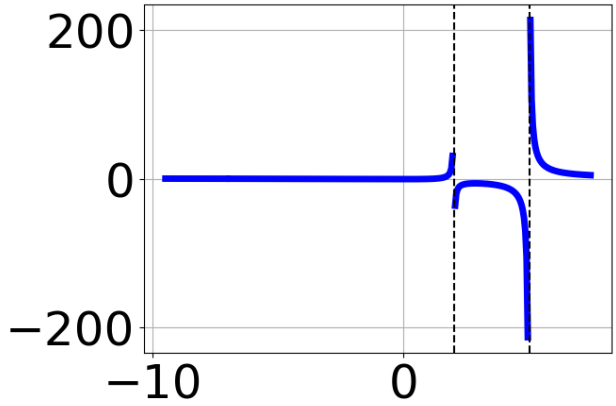
2. Which of the following functions *could* be the graph below?



A. $f(x) = \dfrac{x^3 - 9x^2 + 11x + 21}{x^3 - 39x - 70}$

B. $f(x) = \dfrac{x^3 - 4x^2 - 15x + 18}{x^3 - 39x + 70}$

C. $f(x) = \dfrac{x^3 + 9x^2 + 11x - 21}{x^3 - 39x + 70}$

D. $f(x) = \dfrac{x^3 - 9x^2 + 11x + 21}{x^3 - 39x - 70}$

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.

$$f(x) = \frac{12x^3 + 79x^2 + 144x + 80}{9x^2 - 16}$$

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

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

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

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

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

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

$$f(x) = \frac{12x^3 - 13x^2 - 5x + 6}{8x^2 + 6x - 9}$$

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

B. Vertical Asymptotes of $x = -1.5$ and $x = -0.667$ with a hole at $x = 0.75$

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

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

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

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

$$f(x) = \frac{6x^3 - 13x^2 - 21x + 18}{3x^2 + 13x - 10}$$

A. Horizontal Asymptote of $y = 2.0$

B. Horizontal Asymptote at $y = -5.0$

C. Oblique Asymptote of $y = 2x - 13$.

D. Horizontal Asymptote of $y = 2.0$ and Oblique Asymptote of $y = 2x - 13$

E. Horizontal Asymptote of $y = -5.0$ and Oblique Asymptote of $y = 2x - 13$

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

$$f(x) = \frac{9x^3 - 12x^2 - 11x + 10}{3x^2 + 10x - 8}$$

A. Horizontal Asymptote at $y = -4.0$

B. Horizontal Asymptote of $y = 3.0$ and Oblique Asymptote of $y = 3x - 14$

C. Horizontal Asymptote of $y = 3.0$

D. Oblique Asymptote of $y = 3x - 14$.

E. Horizontal Asymptote of $y = -4.0$ and Oblique Asymptote of $y = 3x - 14$

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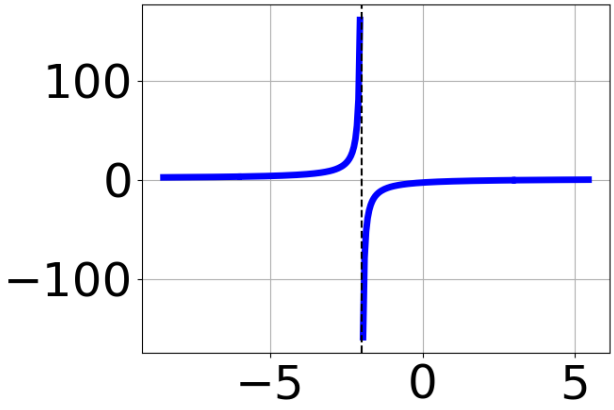
7. Which of the following functions *could* be the graph below?



A. $f(x) = \dfrac{x^3 + 3x^2 - 36x - 108}{x^3 - 5x^2 - 12x + 36}$

B. $f(x) = \dfrac{x^3 + 3x^2 - 36x - 108}{x^3 - 5x^2 - 12x + 36}$

C. $f(x) = \dfrac{x^3 - 3x^2 - 36x + 108}{x^3 + 5x^2 - 12x - 36}$

D. $f(x) = \dfrac{x^3 - 1x^2 - 44x + 84}{x^3 + 5x^2 - 12x - 36}$

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

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

$$f(x) = \frac{6x^3 - 25x^2 + 29x - 10}{9x^2 + 6x - 8}$$

A. Vertical Asymptote of $x = -1.333$ and hole at $x = 0.667$

B. Vertical Asymptotes of $x = -1.333$ and $x = 0.667$ with no holes.

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

D. Vertical Asymptotes of $x = -1.333$ and $x = 2.5$ with a hole at $x = 0.667$

E. Holes at $x = -1.333$ and $x = 0.667$ with no vertical asymptotes.

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

$$f(x) = \frac{4x^3 - 8x^2 - 11x + 15}{6x^2 - 7x - 20}$$

A. Holes at $x = -1.333$ and $x = 2.5$ with no vertical asymptotes.

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

C. Vertical Asymptotes of $x = -1.333$ and $x = 2.5$ with no holes.

D. Vertical Asymptotes of $x = -1.333$ and $x = -1.5$ with a hole at $x = 2.5$

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

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

$$f(x) = \frac{12x^3 + 11x^2 - 7x - 6}{3x^3 + 10x^2 + 12x + 4}$$

A. Vertical Asymptote of $y = -1$

B. Horizontal Asymptote of $y = 4.000$

C. None of the above

D. Vertical Asymptote of $y = -2.000$

E. Horizontal Asymptote of $y = 0$
