

Vertical Asymptotes

p. 128 - 137 (2.5)

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1. If $f(x) \rightarrow \pm \infty$ as $x \rightarrow c^\pm$, then $x = c$ is a V.A.
2. If a function has a vertical asymptote, then it is not continuous.
3. V.A. occurs where denominator = 0, there is not a common factor, and the numerator $\neq 0$.

For 1-3, find the vertical asymptotes.

1. $g(x) = \frac{(2x^2 - x)}{x + 5}$ 2. $h(t) = \frac{t^2 - 4}{t^2 + 5t + 6}$ 3. $f(x) = \frac{3x - 7}{x^2 - 9}$

**4(FR) Let f be the function by $f(x) = \frac{x}{\sqrt{x^2 - 4}}$

- (a) Find the domain of f .
- (b) Write the equation for each vertical and horizontal asymptote to the graph of f .

**5(FR) Let f be the function given by $f(x) = \frac{9x^2 - 36}{x^2 - 9}$

- (a) Describe the symmetry of the graph of f .
- (b) Write an equation for each vertical and each horizontal asymptote of f .