

Find any points of discontinuity for each rational function and identify them as either holes or vertical asymptotes.

1.  $y = \frac{4x^2 - 8x}{x^2 - 4}$

2.  $y = \frac{x^2 + 10x + 25}{x^2 - 25}$

3.  $y = \frac{x^2 - 9x - 10}{x^2 + 1}$

4.  $y = \frac{x^2 + 4x - 12}{x^3 + 3x^2 - 4x - 12}$