

1) Determine where $f(x) = \frac{x - 3}{(x - 4)(x - 1)}$ is continuous.

2) Determine the continuity of the given function at the indicated points.

$$f(x) = \frac{x - 8}{x - 9}; x = 8, 0, 9$$

3) Determine intervals where the function is continuous.

$$f(x) = \frac{5x - 4}{x^2 - 4}$$

4) Determine intervals where the function is continuous.

$$f(x) = \frac{2x^2 + 3x + 6}{x^2 + 3}$$

5) Find all points of discontinuity and describe the behavior at each point of discontinuity. Identify all vertical asymptotes for the function $f(x) = \frac{x + 2}{x^2 - 4}$.

Answer Key

Testname: WORKSHEET 1.6 CONTINUITY

- 1) All x except $x = 4$ and $x = 1$
- 2) continuous at $x = 8, 0$; discontinuous at $x = 9$
- 3) Not continuous at 2 or -2 OR $(-\infty, -2) \cup (-2, 2) \cup (2, \infty)$
- 4) Always continuous OR $(-\infty, \infty)$
- 5) f is discontinuous at $x = 2$; $\lim_{x \rightarrow 2^-} f(x) = -\infty$, $\lim_{x \rightarrow 2^+} f(x) = \infty$; the line $x = 2$ is a vertical asymptote;
 f is discontinuous at $x = -2$; $\lim_{x \rightarrow -2} f(x) = -\frac{1}{4}$, but $f(-2)$ does not exist; there is no vertical asymptote at $x = -2$.