Continuity

1. A function $f(x)$ is said to be continuous at $x = a$ if:

2. Determine whether the following functions are continuous at all values of x. If there is a discontinuity, note where the discontinuity occurs as well as which type of discontinuity it is:

   a. $f(x) = x^2$

   b. $f(x) = \frac{x^2 - 9}{x - 3}$

   c. $f(x) = \frac{|x|}{x}$

   d. $f(x) = \frac{5}{x}$