Three important theorems about continuity

**Theorem 7** The following types of functions are continuous at every number in their domains:

- polynomials
- rational functions
- root functions
- trigonometric functions
- inverse trigonometric functions
- exponential functions
- logarithmic functions

**Theorem 4** If \( f \) and \( g \) are continuous at \( a \) and \( c \) is a constant, then the following functions are also continuous at \( a \):

1. \( f + g \)
2. \( f - g \)
3. \( cf \)
4. \( fg \)
5. \( \frac{f}{g} \) if \( g(a) \neq 0 \)

**Theorem 9** If \( g \) is continuous at \( a \) and \( f \) is continuous at \( g(a) \), then the composite function \( f \circ g \) given by \( (f \circ g)(x) = f(g(x)) \) is continuous at \( a \).