

**Absolute and conditional convergence** – Determine whether the following series diverge, converge absolutely, or converge conditionally.

1. 
$$\sum_{k=1}^{\infty} \frac{(-1)^{k+1}}{\sqrt{k}}$$

2. 
$$\sum_{k=1}^{\infty} \frac{\sin k}{k^2}$$

**Taylor polynomials** – Find the Taylor polynomials  $p_1$  through  $p_7$  centered at  $c$  for the following functions.

3.  $f(x) = \sin(x), c = 0$

4.  $g(x) = \ln x, c = 1$

**5. Estimating the remainder** – Find a bound for the magnitude of the remainder for the Taylor polynomials of  $f(x) = \cos x$  centered at 0.