Name: Section: 1 2

1. Determine for which x does the series converge absolutely, converge conditionally, and diverge. State the radius of convergence and the interval of convergence.

$$\sum_{n=1}^{\infty} \frac{(x-1)^n}{2^n \sqrt{n}}$$

2. Find the Taylor polynomial of order 3 for each of the following functions at the specified center.

   (a) $f(x) = \sqrt{1+x}$ at $a = 0$.

   (b) $f(x) = \sin(2x)$ at $a = \pi/3$.