



PHILADELPHIA UNIVERSITY
DEPARTMENT OF BASIC SCIENCES

First Exam

MATHEMATICS FOR COMPUTING

17-11-2005

1 (6 points) Convergent or divergent? Explain the reasons.

•
$$\sum (-1)^n \frac{5}{(2n+1)}$$

•
$$\sum \frac{4^n}{5^{n+1}}$$

2 (7 points) Find the interval of convergence.

$$\sum \frac{(3-x)^n}{n^3}$$

3 (7 points) Find the Taylor series for $f(x) = \ln x$ at $a = 1$.
(The derivative of $\ln x$ is x^{-1})