Math 31 Summer 2019

Quiz ϕ

July 15, 2019

1) Determine if the following series converge or diverge. Use any test exactly once.

$$i) \sum_{n=0}^{\infty} \frac{n \cos(\pi n)}{n^2 + 2n + 4} \qquad\qquad ii) \sum_{n=2}^{\infty} \frac{(2n^2 + 3n + 4)(2n)!}{(3n^3 + 8n + 11)(4n)^{2n}}$$

$$iii) \sum_{n=3}^{\infty} \left(1 + \frac{2}{n}\right)^{-3n^2} \qquad\qquad iv) \sum_{n=2}^{\infty} \frac{(-1)^n (2n^2 - 3n + 8)}{n^2 + 3n + 1}$$

$$v) \sum_{n=1}^{\infty} \pi^{1/n} - 1$$

2) Of the series above that do converge, determine if they converge absolutely or converge conditionally. You may use any test you like any number of times. If the answer is obvious from your previous work, then you may simply state the answer (i.e. if you used a test that specified that a series converged absolutely, then you may simply state so without showing work).