# Homework 18 (Chap. 11.3), 55.00/90.00 (61.11%)

March 22, 2020

### Problem 22 score: 9/10[1]

OK, but where did you check the requirements for Integral Test (e.g. the fact that $f(x)$ is continuous, positive and decreasing)?

Also, series *converges* (not *converge*).

### Problem 24 score: 9/10[2]

OK, but where did you check the requirements for Integral Test (e.g. the fact that $f(x)$ is continuous, positive and decreasing)?

### Problem 26 score: 9/10[3]

Same as in previous problem.

### Problem 32 score: 0/10[4]

Answer is wrong. For example, this series converges when $p = 3/2 < 2$:

$$\sum_{n=1}^{\infty} \frac{\ln n}{n^{3/2}} = \underbrace{\sum_{n=1}^{\infty} \frac{1}{n^{5/4}}}_{\text{convergent}} \cdot \underbrace{\frac{\ln n}{n^{1/4}}}_{<1 \text{ for } n \text{ big}}$$

### Problem 39 score: 6/10[5]

Note that the fact that reminder is less that $10^{-6}$ does NOT in general guarantee correctness to fifth decimal places. For example, take

$$a = 1.9999999, \quad b = 0.0000001 < 10^{-6},$$

but we still have $a + b = 2$, so $a$ and $a + b$ have different fifth decimal sign.

[1] similar problems: 20,21
[2] similar problems: 19,23
[3] similar problems: 18,25
[4] similar problems: 31,33
[5] similar problems: 39,40

### Problem 43 score: 10/10

good

### Problem 45 score: 10/10

good

### Problem 46 score: 2/10[6]

¡++¿ Answer is wrong. For example, for $c = 0 \leq 1$ series diverges.

[6]similar problems: 44,42