

YOUR NAME: _____

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Read each problem **very carefully** before starting to solve it. Each problem is worth 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Test the following series for convergence or divergence. Please, show all details and provide explanations for your statements:

(a)
$$\sum_{n=1}^{\infty} \frac{1}{\sqrt{n^3 + 1}}$$

(b)
$$\sum_{n=0}^{\infty} \frac{1 + \sin n}{10^n}$$

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

(d)
$$\sum_{n=1}^{\infty} (-1)^{n-1} \frac{\ln n}{n}$$