

Homework 3 - due 10:00 AM on Thursday, August 3

Double Integrals Practice

Show your work.

$$1. \int_0^3 \int_0^1 (16 - x^2 - 3y^2) dy dx$$

Sequences Practice

Make sure to justify your solution for each problem. Determine whether the sequence converges or diverges. If it converges, find its limit.

$$1. a_n = \frac{7 + 15n^4}{137 - 22n^3 + 47n^4}$$

$$2. a_n = \frac{3^{n+4}}{5^n}$$

$$3. a_n = \sqrt{\frac{n-14}{7n+1}}$$

$$4. a_n = ne^{-n}$$

$$5. \left\{ \frac{1}{1}, \frac{1}{3}, \frac{1}{2}, \frac{1}{4}, \frac{1}{3}, \frac{1}{5}, \frac{1}{4}, \frac{1}{6}, \dots \right\}$$

$$6. a_n = \frac{1 + 2 + 3 + \dots + (n-1)}{n!}$$

$$7. a_n = \frac{\cos(n)}{n^2}$$

$$8. a_n = \frac{2 + 3^n}{2 + 3^{n+1}}$$