

Student ID:

MATH102, Section 1
Fall 2018, Term 173

Quiz 1
Version A

Student Name:

Serial Number: _____

Instructions: Show Your Work!

1. (5 pts) Find the limit

$$\lim_{n \rightarrow \infty} \frac{(8 + 27 + 64 + \cdots + n^3)}{n^4}.$$

2. (5 pts) Let

$$F(x) = \int_0^x \frac{t-3}{t^2+3} dt \quad \text{for } -\infty < x < \infty$$

Find open interval over which F is increasing only.

Instructions: Show Your Work!

1. (5 pts) Find the limit

$$\lim_{n \rightarrow \infty} \frac{(4 + 9 + 36 + \cdots + n^2)}{n^3}.$$

2. (5 pts) Let

$$F(x) = \int_0^x \frac{t-3}{t^2+3} dt \quad \text{for } -\infty < x < \infty$$

Find open interval over which F is decreasing only.