

Name:

EID:

SDS321 – Quiz

Show your work.

Use extra pages if needed. Of course, please put your name on extra pages.

1. [3 pts] Prove that $1 + 2 + 3 + \dots + n = n(n + 1)/2$.

2. [1 pts] Multiple choice: $\sum_{i=1}^{\infty} \left(\frac{1}{2}\right)^{i-1} = ?$ (A) 1/2 (B) 1 (C) 2 (D) None of these.

3. [1pts] Multiple choice: $\int_0^\infty e^{-x} dx = ?$ (A) 1 (B) 2 (C) -1 (D) None of these.

4. [1pts] Multiple choice: $\int_0^\infty e^{-2x} dx = ?$ (A) 1 (B) -2 (C) 1/2 (D) None of these.

5. [1pts] Multiple choice: $\frac{d}{dx} e^{-x} = ?$ (A) e^{-x} (B) $-e^{-x}$ (C) xe^{-x} (D) None of these.

6. [1pts] Multiple choice: $\frac{d}{dx} e^{-x^2} = ?$ (A) e^{-x^2} (B) $-2xe^{-x^2}$ (C) $x^2e^{-x^2}$ (D) None of these.

7. [1pts] Multiple choice: $\frac{d}{dx} \left(x + \frac{1}{x} \right) = ?$ (A) $1 - \frac{1}{x^2}$ (B) $\frac{x}{1+x}$ (C) $1 - \frac{1}{x^2}$ (D) None of these.