Quiz #10

Directions: Carefully read each question below and answer to the best of your ability in the space provided. You **MUST** show your work to receive full credit! Your answer to problem # 2 should be written in a clear and concise manner using a combination of complete sentences and symbolic expressions. An answer without explanation or that is poorly presented may not receive full credit.

1. (1 point) The value of $\int_0^2 (2x-6)\,dx$ is:

   A. -8

   B. 8

   C. -2

   D. 2

   E. None of the above

2. (2 points) Find the value of the integral $\int_1^3 xe^{3x^2}\,dx$.

Solution: Let $u = 3x^2$, then $du = 6x\,dx$ and $dx = \dfrac{1}{6x}du$. So

$$u(1) = 3\cdot 1^2 = 3 \quad \text{and} \quad u(3) = 3\cdot 3^2 = 27,$$

and

$$\int_1^3 xe^{3x^2}\,dx = \int_1^{27} xe^u \frac{1}{6x}\,du = \frac{1}{6}\int_3^{27} e^u\,du$$
$$= \frac{1}{6}e^u\Big|_3^{27} = \boxed{\frac{1}{6}\left(e^{27}-e^3\right) = 8.8675\cdot 10^{10}}.$$

Name: _____

Section (circle one): 015 020

Question:	1	2	Total
Points:	1	2	3
Score:			