

3. Which of the following definite integrals has the same value as $\int_0^4 xe^{x^2} dx$?

(A) $\frac{1}{2} \int_0^4 e^u du$

(B) $\frac{1}{2} \int_0^{16} e^u du$

(C) $2 \int_0^2 e^u du$

(D) $2 \int_0^4 e^u du$

(E) $2 \int_0^{16} e^u du$

8. Using the substitution $u = \sin(2x)$, $\int_{\pi/6}^{\pi/2} \sin^5(2x)\cos(2x) dx$ is equivalent to

(A) $-2 \int_{1/2}^1 u^5 du$

(B) $\frac{1}{2} \int_{1/2}^1 u^5 du$

(C) $\frac{1}{2} \int_0^{\sqrt{3}/2} u^5 du$

(D) $\frac{1}{2} \int_{\sqrt{3}/2}^0 u^5 du$

(E) $2 \int_{\sqrt{3}/2}^0 u^5 du$

(A) $2 \int_{16}^1 e^u du$ (B) $2 \int_4^1 e^u du$ (C) $2 \int_2^1 e^u du$ (D) $\frac{1}{2} \int_2^1 e^u du$ (E) $\int_4^1 e^u du$

12. Using the substitution $u = \sqrt{x}$, $\int_4^1 e^{\sqrt{x}} \frac{\sqrt{x}}{4} dx$ is equal to which of the following?