

No calculators will be allowed and no partial credit will be given.

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1. Express the indefinite integral  $\int (2x - 2)(x^2 - 2x + 4)^2 dx$  in terms of elementary functions. Use the symbol C to denote an arbitrary constant.
2. Express the indefinite integral  $\int -\sin(5x) dx$  in terms of elementary functions. Use the symbol C to denote an arbitrary constant.
3. Express the indefinite integral  $\int -3(\cos(t))^6 \sin(t) dt$  in terms of elementary functions. Use the symbol C to denote an arbitrary constant.
4. Express the indefinite integral  $\int 7te^{-t^2} dt$  in terms of elementary functions. Use the symbol C to denote an arbitrary constant.
5. Express the indefinite integral  $\int 2x^{3/2} \sin(x^{5/2} + 1) dx$  in terms of elementary functions. Use the symbol C to denote an arbitrary constant.
6. Express the indefinite integral  $\int \frac{10x + 2}{5x^2 + 2x} dx$  in terms of elementary functions. Use the symbol C to denote an arbitrary constant.
7. Express in simplified form the value of  $\int_0^1 -2x^4 (2x^5 + 1)^2 dx$ .
8. Express in simplified form the value of  $\int_0^1 6xe^{-x^2} dx$ .
9. Express in simplified form the value of  $\int_0^{\pi/2} -2\cos(x)(\sin(x))^5 dx$ .
10. Express in simplified form the value of  $\int_1^e \frac{3(\ln(x))^2}{x} dx$ .

1.  $\frac{(x^2 - 2x + 4)^3}{3} + C$

2.  $\frac{\cos(5x)}{5} + C$

3.  $\frac{3(\cos(t))^7}{7} + C$

4.  $-\frac{7e^{-t^2}}{2} + C$

5.  $-\frac{4 \cos\left(x^{\frac{5}{2}} + 1\right)}{5} + C$

6.  $\ln(|5x^2 + 2x|) + C$

7.  $-\frac{26}{15}$

8.  $3 - 3 \cdot e^{-1}$

9.  $-\frac{1}{3}$

10. 1