

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

1. Express the indefinite integral $\int (2x + 3)(x^2 + 3x + 5)^2 dx$ in terms of elementary functions. Use the symbol C to denote an arbitrary constant.
2. Express the indefinite integral $\int -2 \sin(6x) dx$ in terms of elementary functions. Use the symbol C to denote an arbitrary constant.
3. Express the indefinite integral $\int -2 \cos(t) (\sin(t))^5 dt$ in terms of elementary functions. Use the symbol C to denote an arbitrary constant.
4. Express the indefinite integral $\int -2te^{-t^2} dt$ in terms of elementary functions. Use the symbol C to denote an arbitrary constant.
5. Express the indefinite integral $\int 3x^{1/2} \sin(x^{3/2} + 1) dx$ in terms of elementary functions. Use the symbol C to denote an arbitrary constant.
6. Express the indefinite integral $\int \frac{14x + 2}{7x^2 + 2x - 1} dx$ in terms of elementary functions. Use the symbol C to denote an arbitrary constant.
7. Express in simplified form the value of $\int_0^1 -3x^2(2x^3 + 1)^2 dx$.
8. Express in simplified form the value of $\int_0^1 2xe^{-x^2} dx$.
9. Express in simplified form the value of $\int_0^{\pi/2} -2(\cos(x))^3 \sin(x) dx$.
10. Express in simplified form the value of $\int_1^e -\frac{(\ln(x))^4}{x} dx$.

1. $\frac{(x^2 + 3x + 5)^3}{3} + C$

2. $\frac{\cos(6x)}{3} + C$

3. $-\frac{(\sin(t))^6}{3} + C$

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

5. $-2 \cos\left(x^{\frac{3}{2}} + 1\right) + C$

6. $\ln(|7x^2 + 2x - 1|) + C$

7. $-\frac{13}{3}$

8. $1 - e^{-1}$

9. $-\frac{1}{2}$

10. $-\frac{1}{5}$