

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

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

16. Express the indefinite integral $\int -2 (\sec(t))^6 \tan(t) dt$ in terms of elementary functions. Use the symbol C to denote an arbitrary constant.
17. Express the indefinite integral $\int \frac{14x + 2}{7x^2 + 2x - 2} dx$ in terms of elementary functions. Use the symbol C to denote an arbitrary constant.

1. $\frac{4}{3}$

2. $3 \cdot \ln(2) + 3$

3. $5 \cdot \ln(2) + \frac{9}{2}$

4. $\frac{3x^4}{4} + \frac{7x^2}{2} + C$

5. $4 \sin(x) + 7e^x + C$

6. $3 \ln(|x|) + x^4 + \frac{5x^3}{3} + C$

7. -10

8. $\frac{3}{4}$

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

10. $\frac{8 \sin\left(x^{\frac{7}{4}} + 1\right)}{7} + C$

11. $-\frac{2 \sin(5x)}{5} + C$

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

13. $2e^{-t^2} + C$

14. $\frac{3}{2} - \frac{3 \cdot e^{-1}}{2}$

15. $\frac{2 (\cos(x))^7}{7} + C$

16. $-\frac{1}{3 (1 - (\sin(t))^2)^3} + C$

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