

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

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

15. Express the indefinite integral $\int 3 \cos(x) (\sin(x))^8 dx$ in terms of elementary functions. Use the symbol C to denote an arbitrary constant.
16. Express the indefinite integral $\int 4 (\sec(t))^5 \tan(t) dt$ in terms of elementary functions. Use the symbol C to denote an arbitrary constant.
17. Express the indefinite integral $\int \frac{8x + 6}{4x^2 + 6x + 3} dx$ in terms of elementary functions. Use the symbol C to denote an arbitrary constant.

1. $\frac{5}{6}$

2. $4 \cdot \ln(4) + 6$

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

4. $\frac{x^6}{3} + \frac{7x^2}{2} + C$

5. $\frac{3}{\cos(x)} + 8e^x + C$

6. $-2 \ln(|x|) + \frac{x^4}{2} + \frac{7x^3}{3} + C$

7. -20

8. $\frac{1}{2}$

9. 12

10. $-\frac{9e^{x^{\frac{5}{3}+1}}}{5} + C$

11. $-\frac{3 \cos(7x)}{7} + C$

12. $\frac{(x^2 + 8x + 2)^6}{6} + C$

13. $-\frac{3e^{-t^4}}{4} + C$

14. $\frac{5}{4} - \frac{5 \cdot e^{-1}}{4}$

15. $\frac{(\sin(x))^9}{3} + C$

16. $\frac{4}{5(\cos(t))^5} + C$

17. $\ln(|4x^2 + 6x + 3|) + C$