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

1. Express the indefinite integral \( \int (2x + 8) (x^2 + 8x + 4)^3 \, dx \) in terms of elementary functions. Use the symbol \( C \) to denote an arbitrary constant.

2. Express the indefinite integral \( \int e^{6x} \, dx \) in terms of elementary functions. Use the symbol \( C \) to denote an arbitrary constant.

3. Express the indefinite integral \( \int 2 \cos(x) (\sin(x))^6 \, dx \) in terms of elementary functions. Use the symbol \( C \) to denote an arbitrary constant.

4. Express the indefinite integral \( \int 5t^2 e^{-t^3} \, dt \) in terms of elementary functions. Use the symbol \( C \) to denote an arbitrary constant.

5. Express the indefinite integral \( \int -3x^{3/2} e^{x^{5/2}+1} \, dx \) in terms of elementary functions. Use the symbol \( C \) to denote an arbitrary constant.

6. Express the indefinite integral \( \int \frac{6x + 5}{3x^2 + 5x + 1} \, dx \) in terms of elementary functions. Use the symbol \( C \) to denote an arbitrary constant.

7. Express in simplified form the value of \( \int_0^1 6x^2 (2x^3 + 1)^2 \, dx \).

8. Express in simplified form the value of \( \int_0^1 5x^2 e^{-x^3} \, dx \).

9. Express in simplified form the value of \( \int_0^\pi 2 \cos(x)^5 \sin(x) \, dx \).

10. Express in simplified form the value of \( \int_1^e \frac{4 \ln(x)^2}{x} \, dx \).
1. \( \frac{(x^2 + 8x + 4)^4}{4} + C \)

2. \( \frac{e^{6x}}{6} + C \)

3. \( \frac{2 \sin(x)^7}{7} + C \)

4. \( -\frac{5e^{-t^2}}{3} + C \)

5. \( -\frac{6e^{x^\frac{2}{5}+1}}{5} + C \)

6. \( \ln\left(\left|3x^2 + 5x + 1\right|\right) + C \)

7. \( \frac{26}{3} \)

8. \( \frac{5}{3} - \frac{5 \cdot e^{-1}}{3} \)

9. 0

10. \( \frac{4}{3} \)