Integration practice I

Here are some integrals and antiderivatives to practice with, involving powers of sin and cos, substitution, and integration by parts.

1. Compute the antiderivative.

\[ \int \sin[x]^3 \, dx \]

2. Compute the antiderivative.

\[ \int \sin[x]^3 \cos[x] \, dx \]

3. Compute the antiderivative.

\[ \int x \sin[x] \, dx \]

4. Compute the antiderivative.

\[ \int x^2 e^x \, dx \]

5. Compute the antiderivative.

\[ \int \sec[x]^2 \, dx \]
6. Compute the antiderivative.

\[ \int \sin^2(2x) \, dx \]

7. Compute the antiderivative.

\[ \int \tan(3x) \, dx \]

8. Compute the antiderivative.

\[ \int \sin^2(\theta) \cos^2(\theta) \, d\theta \]

9. Compute the antiderivative.

\[ \int \frac{\sin^3(x)}{\sqrt{\cos(x)}} \, dx \]

10. Compute the antiderivative.

\[ \int \tan^3(x) \, dx \]

11. Compute the antiderivative.

\[ \int x^2 \sqrt{2x^3 - 4} \, dx \]
12. Compute the antiderivative.

\[ \int \frac{3x}{\sqrt{1-x^2}} \, dx \]

13. Compute the antiderivative.

\[ \int \sin(2x)^3 \cos(2x) \, dx \]

14. Compute the antiderivative.

\[ \int x e^{2x} \, dx \]

15. Compute the antiderivative.

\[ \int x^2 \sin(x) \, dx \]

16. Compute the antiderivative.

\[ \int x^3 \log(x) \, dx \]

17. Compute the antiderivative.

\[ \int \log(x) \, dx \]
18 Compute the antiderivative.

\[
\int \log(x)^2 \, dx
\]