

1. Use IBP and then substitution to find $\int \tan^{-1} 2x \, dx$

2. Use substitution and then IBP to find $\int \frac{\ln(\ln 3x) \ln 3x}{x} \, dx$

3. Use IBP cycle method to find $\int e^{2x} \sin 5x \, dx$

4. Use IBP to evaluate $\int_1^8 x \ln(x) \, dx$

5. Use a power reduction formula (two will be needed) and then find $\int \sin^4 8x \, dx$

6. $\int \tan^5 x \sec^3 x \, dx$

Use a trigonometric substitution to solve problems 7 - 8.

7. $\int \frac{dx}{\sqrt{16x^2 - 25}}$

8. $\int \frac{x^2}{\sqrt{36 - x^2}} \, dx$

Use the method of partial fractions to solve problems 9 - 11.

9. $\int \frac{5x - 8}{x^2 + 5x - 14} \, dx$

10. $\int \frac{5}{(x - 4)^2 (x - 1)} \, dx$

11. $\int \frac{x^3 + x^2 + 4}{x^2 + 1} \, dx$

Determine the best integration technique to determine the following integrals in problems 12 - 14.

12. $\int \sqrt{\frac{1+x}{1-x}} \, dx$

13. $\int \sin^5 x \cos^4 x \, dx$

14. $\int x^4 \ln x \, dx$

Write the following improper integrals in proper form and then integrate to determine solution.

15. $\int_{-\infty}^0 \frac{dx}{3 - 4x}$

16. $\int_0^5 \frac{dx}{\sqrt[3]{5 - x}}$

17. $\int_{\frac{\pi}{6}}^1 \frac{dx}{x\sqrt{x^2 - 1}}$