

Integrals**Advanced****Advanced Integration By Parts**

1. $\int x \sin(x) \cos(x) dx$

2. $\int x \sin(2x) \cos(3x) dx$

3. $\int \frac{2x \sin(x)}{\cos^3(x)} dx$

4. $\int \frac{x}{\cos^2(x)} dx$

5. $\int \sec(2x) \tan(2x) dx$

6. $\int \sin^2(2x) \cos(2x) dx$

7. $\int \frac{x \tan(x)}{\cos^2(x)} dx$

8. $\int \frac{x \sin^2(x) \cot^2(x)}{\cos^4(x)} dx$

9. $\int x \sin(3x) \cos(2x) dx$

10. $\int x^2 \sin(x) \cos(x) dx$

Answers

Integrals

Advanced

Advanced Integration By Parts

$$1. \frac{1}{2} \left(-\frac{1}{2} x \cos(2x) + \frac{1}{4} \sin(2x) \right) + C$$

$$2. \frac{1}{2} \left(-\frac{1}{5} x \cos(5x) + x \cos(x) + \frac{1}{25} \sin(5x) - \sin(x) \right) + C$$

$$3. x \tan^2(x) + x - \tan(x) + C$$

$$4. x \tan(x) + \ln |\cos(x)| + C$$

$$5. \frac{1}{2} \sin(2x) \tan(2x) + \frac{1}{2} \cos(2x) + C$$

$$6. \frac{1}{12} \left(\sin(6x) - 3 \sin(2x) \cos(4x) \right) + C$$

$$7. \frac{1}{2} x \tan^2(x) - \frac{1}{2} \left(-x + \tan(x) \right) + C$$

$$8. x \tan(x) + \ln |\cos(x)| + C$$

$$9. \frac{1}{2} x \left(-\frac{1}{5} \cos(5x) - \cos(x) \right) - \frac{1}{2} \left(-\frac{1}{25} \sin(5x) - \sin(x) \right) + C$$

$$10. \frac{1}{2} \left(-\frac{1}{2} x^2 \cos(2x) + \frac{1}{4} \left(2x \sin(2x) + \cos(2x) \right) \right) + C$$