Integration of Trigonometric (power) Functions — Rules

P4. $$\int \sin^2(mx)\,dx = \frac{1}{2m}(mx - \sin(mx)\cos(mx)) + C$$

P5. $$\int \cos^2(mx)\,dx = \frac{1}{2m}(mx + \sin(mx)\cos(mx)) + C$$

P6. $$\int \sin^n(x)\,dx = -\frac{\sin^{n-1}(x)\cos(x)}{n} + \frac{n-1}{n}\int \sin^{n-2}(x)\,dx$$

P7. $$\int \cos^n(x)\,dx = \frac{\cos^{n-1}(x)\sin(x)}{n} + \frac{n-1}{n}\int \cos^{n-2}(x)\,dx$$

P8. $$\int \sin^m(x)\cos^n(x)\,dx = \frac{\sin^{m+1}(x)\cos^{n-1}(x)}{n+m} + \frac{n-1}{n+m}\int \sin^m(x)\cos^{n-2}(x)\,dx, \quad \text{for } m \neq 1 \text{ or } n \neq 1$$

P9. $$\int \mathrm{tg}^n(x)\,dx = \frac{\mathrm{tg}^{n-1}(x)}{n-1} - \int \mathrm{tg}^{n-2}(x)\,dx, \quad n \neq 1$$

P10. $$\int \mathrm{cotg}^n(x)\,dx = -\frac{\mathrm{cotg}^{n-1}(x)}{n-1} - \int \mathrm{cotg}^{n-2}(x)\,dx, \quad n \neq 1$$

P11. $$\int \sec^n(x)\,dx = \frac{\mathrm{tg}(x)\sec^{n-2}(x)}{n-1} + \frac{n-2}{n-1}\int \sec^{n-2}(x)\,dx, \quad n \neq 1$$

P12. $$\int \mathrm{cosec}^n(x)\,dx = -\frac{\mathrm{cotg}(x)\,\mathrm{cosec}^{n-2}(x)}{n-1} + \frac{n-2}{n-1}\int \mathrm{cosec}^{n-2}(x)\,dx, \quad n \neq 1$$