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

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

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

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