Trigonometric Integrals

1. $\int \sin(x)dx = -\cos(x) + C$
2. $\int \sin^2(x)dx = \frac{x}{2} - \frac{1}{4}\sin(2x) + C = \frac{x}{2} - \frac{1}{2}\sin(x)\cos(x) + C$
3. $\int \sin^n(x)dx = -\frac{1}{n}\sin^{n-1}(x)\cos(x) + \frac{n-1}{n}\int \sin^{n-2}(x)dx \quad (n \geq 2)$
4. $\int \cos(x)dx = \sin(x) + C$
5. $\int \cos^2(x)dx = \frac{x}{2} + \frac{1}{4}\sin(2x) + C = \frac{x}{2} + \frac{1}{2}\sin(x)\cos(x) + C$
6. $\int \cos^n(x)dx = \frac{1}{n}\cos^{n-1}(x)\sin(x) + \frac{n-1}{n}\int \cos^{n-2}(x)dx \quad (n \geq 2)$
7. $\int \sin^m(x)\cos^n(x)dx = \frac{1}{m+n}\sin^{m+1}(x)\cos^{n-1}(x) + \frac{n-1}{m+n}\int \sin^m(x)\cos^{n-2}(x)dx \quad (m \geq 0, n \geq 2)$
8. $\int \sin^m(x)\cos^n(x)dx = -\frac{1}{m+n}\sin^{m-1}(x)\cos^{n+1}(x) + \frac{m-1}{m+n}\int \sin^{m-2}(x)\cos^n(x)dx \quad (m \geq 2, n \geq 0)$
9. $\int \tan(x)dx = \ln|\sec(x)| + C = -\ln|\cos(x)| + C$
10. $\int \tan^n(x)dx = \frac{1}{n-1}\tan^{n-1}(x) - \int \tan^{n-2}(x)dx \quad (n \geq 2)$
11. $\int \cot(x)dx = -\ln|\csc(x)| + C = \ln|\sin(x)| + C$
12. $\int \cot^n(x)dx = -\frac{1}{n-1}\cot^{n-1}(x) - \int \cot^{n-2}(x)dx \quad (n \geq 2)$
13. $\int \sec(x)dx = \ln|\sec(x) + \tan(x)| + C$
14. $\int \sec^n(x)dx = \frac{1}{n-1}\tan(x)\sec^{n-2}(x) + \frac{n-2}{n-1}\int \sec^{n-2}(x)dx \quad (n \geq 2)$
15. $\int \csc(x)dx = \ln|\csc(x) - \cot(x)| + C$
16. $\int \csc^n(x)dx = -\frac{1}{n-1}\cot(x)\csc^{n-2}(x) + \frac{n-2}{n-1}\int \csc^{n-2}(x)dx \quad (n \geq 2)$
17. $\int \sin(mx)\sin(nx)dx = \frac{1}{2(m-n)}\sin((m-n)x) - \frac{1}{2(m+n)}\sin((m+n)x) + C \quad (m \neq \pm n)$
18. $\int \sin(mx)\cos(nx)dx = -\frac{1}{2(m-n)}\cos((m-n)x) - \frac{1}{2(m+n)}\cos((m+n)x) + C \quad (m \neq \pm n)$
19. $\int \cos(mx)\cos(nx)dx = \frac{1}{2(m-n)}\sin((m-n)x) + \frac{1}{2(m+n)}\sin((m+n)x) + C \quad (m \neq \pm n)$