

12.  $u = 5x, du = 5dx; \frac{1}{5} \int \sec^2 u du = \frac{1}{5} \tan u + C = \frac{1}{5} \tan 5x + C$
13.  $u = 7t^2 + 12, du = 14t dt; \frac{1}{14} \int u^{1/2} du = \frac{1}{21} u^{3/2} + C = \frac{1}{21} (7t^2 + 12)^{3/2} + C$
14.  $u = 4 - 5x^2, du = -10x dx; -\frac{1}{10} \int u^{-1/2} du = -\frac{1}{5} u^{1/2} + C = -\frac{1}{5} \sqrt{4 - 5x^2} + C$
15.  $u = 1 - 2x, du = -2dx, -3 \int \frac{1}{u^3} du = (-3) \left(-\frac{1}{2}\right) \frac{1}{u^2} + C = \frac{3}{2} \frac{1}{(1 - 2x)^2} + C$
16.  $u = x^3 + 3x, du = (3x^2 + 3) dx, \frac{1}{3} \int \frac{1}{\sqrt{u}} du = \frac{2}{3} \sqrt{x^3 + 3x} + C$
17.  $u = 5x^4 + 2, du = 20x^3 dx, \frac{1}{20} \int \frac{du}{u^3} = -\frac{1}{40} \frac{1}{u^2} + C = -\frac{1}{40(5x^4 + 2)^2} + C$
18.  $u = \frac{1}{x}, du = -\frac{1}{x^2} dx, -\frac{1}{3} \int \sin u du = \frac{1}{3} \cos u + C = \frac{1}{3} \cos \left(\frac{1}{x}\right) + C$
19.  $u = 5/x, du = -(5/x^2) dx; -\frac{1}{5} \int \sin u du = \frac{1}{5} \cos u + C = \frac{1}{5} \cos(5/x) + C$
20.  $u = \sqrt{x}, du = \frac{1}{2\sqrt{x}} dx; 2 \int \sec^2 u du = 2 \tan u + C = 2 \tan \sqrt{x} + C$
21.  $u = \cos 3t, du = -3 \sin 3t dt, -\frac{1}{3} \int u^4 du = -\frac{1}{15} u^5 + C = -\frac{1}{15} \cos^5 3t + C$
22.  $u = \sin 2t, du = 2 \cos 2t dt; \frac{1}{2} \int u^5 du = \frac{1}{12} u^6 + C = \frac{1}{12} \sin^6 2t + C$
23.  $u = x^2, du = 2x dx; \frac{1}{2} \int \sec^2 u du = \frac{1}{2} \tan u + C = \frac{1}{2} \tan(x^2) + C$
24.  $u = 1 + 2 \sin 4\theta, du = 8 \cos 4\theta d\theta; \frac{1}{8} \int \frac{1}{u^4} du = -\frac{1}{24} \frac{1}{u^3} + C = -\frac{1}{24} \frac{1}{(1 + 2 \sin 4\theta)^3} + C$
25.  $u = 2 - \sin 4\theta, du = -4 \cos 4\theta d\theta; -\frac{1}{4} \int u^{1/2} du = -\frac{1}{6} u^{3/2} + C = -\frac{1}{6} (2 - \sin 4\theta)^{3/2} + C$
26.  $u = \tan 5x, du = 5 \sec^2 5x dx; \frac{1}{5} \int u^3 du = \frac{1}{20} u^4 + C = \frac{1}{20} \tan^4 5x + C$
27.  $u = \sec 2x, du = 2 \sec 2x \tan 2x dx; \frac{1}{2} \int u^2 du = \frac{1}{6} u^3 + C = \frac{1}{6} \sec^3 2x + C$
28.  $u = \sin \theta, du = \cos \theta d\theta; \int \sin u du = -\cos u + C = -\cos(\sin \theta) + C$
29.  $u = 2y + 1, du = 2dy;$   
 $\int \frac{1}{4} (u - 1) \frac{1}{\sqrt{u}} du = \frac{1}{6} u^{3/2} - \frac{1}{2} \sqrt{u} + C = \frac{1}{6} (2y + 1)^{3/2} - \frac{1}{2} \sqrt{2y + 1} + C$