

$$9. \int \frac{4x^2}{2x-1} dx = \frac{1}{4}(2x-1)^2 + (2x-1) + \frac{1}{2} \ln|2x-1| + C$$

$$10. \int \frac{4x-3}{3x-4} dx = \frac{4}{9}(3x-4) + \frac{7}{9} \ln|3x-4| + C$$

$$9. \int \frac{6x^2}{2x+3} dx = \frac{3}{8}(2x+3)^2 - \frac{9}{2}(2x+3) + \frac{27}{4} \ln|2x+3| + C$$

$$10. \int \frac{1}{x^{\frac{1}{2}} \sqrt{x^{\frac{1}{2}} - 1}} dx = 4\sqrt{x^{\frac{1}{2}} - 1} + C$$

$$9. \int \frac{6x^{\frac{1}{2}}}{2x^{\frac{3}{2}} + 3} dx = 2 \ln|2x^{\frac{3}{2}} + 3| + C$$

$$10. \int \frac{x^{\frac{3}{2}}}{\sqrt{1-3x^{\frac{3}{2}}}} dx = -\frac{4}{15} \sqrt{1-3x^{\frac{3}{2}}} + C$$

$$9. \int_0^{\frac{1}{5}} \frac{10x^2}{5x+1} dx = \frac{\ln 4 - 1}{25}$$

$$10. \int_{-\frac{3}{2}}^{-\frac{1}{2}} \frac{5x-2}{2x-5} dx = \frac{5}{2} + \frac{21}{4} \ln\left(\frac{3}{4}\right)$$

$$9. \int_0^{\frac{1}{3}} \frac{9x^2}{3x+1} dx = \frac{\ln 4 - 1}{6}$$

$$10. \int_0^{\frac{3}{2}} \frac{2x-3}{2x+3} dx = \frac{3}{2}(1 - \ln 4)$$

$$9. \int \frac{3x-1}{2x+3} dx = \frac{3}{4}(2x-3) - \frac{11}{4} \ln|2x+3| + C = \frac{3}{2}x - \frac{11}{4} \ln|2x+3| + C$$

$$10. \int \frac{8x^2}{1-2x} dx = -\frac{1}{2}(1-2x)^2 + 2(1-2x) - \ln|1-2x| + C = -2x^2 - 2x - \ln|1-2x| + C$$

$$3. \int \cos^3 x dx = \sin x - \frac{1}{3} \sin^3 x + C \quad \text{Use } u = \sin x$$

$$4. \int \sec^4 x dx = \tan x + \frac{1}{3} \tan^3 x + C \quad \text{Use } u = \tan x$$

$$5. \int \frac{1}{\sqrt{x}(x-4)} dx = \frac{1}{2} \ln \left| \frac{\sqrt{x}-2}{\sqrt{x}+2} \right| + C \quad \text{Use } u = \sqrt{x}$$

$$6. \int \frac{\sqrt{x^2+9}}{x} dx = \sqrt{x^2+9} + \frac{3}{2} \ln \left| \frac{\sqrt{x^2+9}-3}{\sqrt{x^2+9}+3} \right| + C \quad \text{Use } u = \sqrt{x^2+9}$$

$$7. \int \frac{1+\cos x}{\sin x} dx = \ln|\cos x - 1| + C \quad \text{Use } u = \cos x$$

$$8. \int \frac{1}{1+\sqrt{x-2}} dx = 2\sqrt{x-2} + 2 \ln(1+\sqrt{x-2}) + C \quad \text{Use } u = \sqrt{x-2}$$

$$9. \int \sec^2 x \tan x \sqrt{1+\tan x} dx = \frac{2}{15} (3 \tan x - 2)(1 + \tan x)^{\frac{3}{2}} + C \quad \text{Use } u = \sqrt{1+\tan x}$$

$$10. \int \frac{9}{\sqrt{x}(9x-1)} dx = 3 \ln \left| \frac{3\sqrt{x}-1}{3\sqrt{x}+1} \right| + C \quad \text{Use } u = \sqrt{x}$$

$$1. \int_0^{\sqrt{2}} \frac{x^2}{\sqrt{4-x^2}} dx = \frac{\pi}{2} - 1, \text{ use } x = 2 \sin \theta$$

$$2. \int_1^{\sqrt{2}} \frac{1}{x^2 \sqrt{4-x^2}} dx = \frac{1}{4}(\sqrt{3}-1), \text{ use } x = 2 \cos \theta$$

$$3. \int_0^1 \frac{1}{(1+x^2)^2} dx = \frac{1}{8}(\pi+2), \text{ use } x = \tan \theta$$

$$13. \int_0^2 \sqrt{16-x^2} dx = \frac{1}{3}(4\pi+6\sqrt{3}), \text{ use } x = 4 \sin \theta$$

$$14. \int_0^2 \frac{1}{(3x^2+4)^{\frac{3}{2}}} dx = \frac{1}{8}, \text{ use } x = \frac{2}{\sqrt{3}} \tan \theta$$

$$15. \int_0^2 \sqrt{16-3x^2} dx = \frac{8\pi\sqrt{3}}{9} + 2, \text{ use } x = \frac{4}{\sqrt{3}} \sin \theta$$