

$$1. \int \frac{dx}{16x^2 + 4} \quad V^2 = 16x^2 \quad V = 4x \quad du = 4$$

$$a^2 = 4 \quad a = 2$$

$$\frac{1}{4} \cdot \frac{1}{2} \arctan \frac{4x}{2} + C$$

$$\frac{1}{8} \arctan \frac{4x}{2} + C$$

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$$2. \int \frac{dx}{\sqrt{25x^2 + 1}} \quad V^2 = 25x^2 \quad V = 5x \quad du = 5 \quad a^2 = 1 \quad a = 1$$

$$\frac{1}{5} \ln |5x + \sqrt{25x^2 + 1}| + C$$

$$3. \int \frac{dx}{36 - x^2} \quad V^2 = x^2 \quad V = x \quad du = \quad a^2 = 36 \quad a = 6$$

$$\frac{1}{12} \ln \left| \frac{6+x}{6-x} \right| + C$$

$$4. \int \frac{dx}{\sqrt{4 - 4x^2}} \quad V^2 = 4x^2 \quad V = 2x \quad du = 2 \quad a^2 = 4 \quad a = 2$$

$$\frac{1}{2} \arcsin \frac{2x}{2} + C$$

$$5. \int \frac{dx}{2x\sqrt{4x^2 - 16}} \quad V^2 = 4x^2 \quad V = 2x \quad du = 2 \quad a^2 = 16 \quad a = 4$$

$$\frac{1}{2} \cdot \frac{1}{4} \arccos \frac{2x}{4} + C$$

$$\frac{1}{8} \arccos \frac{2x}{4} + C$$

$$6. \int \sqrt{25 - 25x^2} dx \quad V^2 = 25x^2 \quad V = 5x \quad du = 5$$

$$a^2 = 25 \quad a = 5$$



$$\frac{1}{5} \frac{5x}{2} \sqrt{25-25x^2} + \frac{25}{2} \arcsin \frac{5x}{5} + C$$

$$\frac{5x}{10} \sqrt{25-25x^2} + \frac{25}{2} \arcsin \frac{5x}{5} + C$$

7.  $\int \sqrt{x^2-49} dx$   $v^2=x^2$   $v=x$   $dv=$   $a^2=49$

$$\frac{x}{2} \sqrt{x^2-49} - \frac{49}{2} \ln |x + \sqrt{x^2-49}| + C$$

8.  $\int \frac{dx}{4x^2-25}$   $v^2=4x^2$   $v=2x$   $dv=2$   $a^2=25$   $a=5$

$$\frac{1}{2} \frac{1}{10} \ln \left| \frac{2x-5}{2x+5} \right| + C = \frac{1}{20} \ln \left| \frac{2x-5}{2x+5} \right| + C$$

9.  $\int \frac{dx}{\sqrt{36x^2-1}}$   $v^2=36x^2$   $v=6x$   $dv=6$   $a^2=1$   $a=1$

$$\frac{1}{6} \frac{1}{2} \ln |6x + \sqrt{36x^2-1}| + C$$

10.  $\int \frac{dx}{1-36x^2}$   $v^2=36x^2$   $v=6x$   $dv=6$   $a^2=1$   $a=1$

$$\frac{1}{6} \frac{1}{2} \ln \left| \frac{1+6x}{1-6x} \right| + C$$

$$\frac{1}{12} \ln \left| \frac{1+6x}{1-6x} \right| + C$$

11.  $\int \frac{dx}{\sqrt{49x^2-4}}$   $v^2=49x^2$   $v=7x$   $dv=7$   $a^2=4$   $a=2$

$$\frac{1}{7} \ln |7x + \sqrt{49x^2-4}| + C$$

$$12. \int \frac{dx}{4x^2-1} \quad u^2=4x^2 \quad u=2x \quad du=2 \quad a^2=1 \quad a=1$$

$$\frac{1}{2} \cdot \frac{1}{2} \ln \left| \frac{2x-1}{2x+1} \right| + C = \frac{1}{4} \ln \left| \frac{2x-1}{2x+1} \right| + C$$

$$13. \int \sqrt{1-9x^2} dx \quad u^2=9x^2 \quad u=3x \quad du=3 \quad a^2=1 \quad a=1$$

$$\frac{1}{3} \cdot \frac{3x}{2} \sqrt{1-9x^2} + \frac{1}{2} \arcsin \frac{3x}{1} + C$$

$$14. \int \frac{dx}{\sqrt{4x^2-9}} \quad u^2=4x^2 \quad u=2x \quad du=2 \quad a^2=9 \quad a=3$$

$$\frac{1}{2} \cdot \frac{2x}{2} \sqrt{4x^2-9} - \frac{9}{2} \ln |2x + \sqrt{4x^2-9}| + C$$

$$\frac{2x}{4} \sqrt{4x^2-9} - \frac{9}{2} \ln |2x + \sqrt{4x^2-9}| + C$$

$$15. \int \frac{dx}{16x^2-25} \quad u^2=16x^2 \quad u=4x \quad du=4 \quad a^2=25 \quad a=5$$

$$\frac{1}{4} \cdot \frac{1}{10} \ln \left| \frac{4x-5}{4x+5} \right| + C$$

$$\frac{1}{40} \ln \left| \frac{4x-5}{4x+5} \right| + C$$