

$$4. \int \frac{4}{x \sqrt{5 - (\ln x)^2}} dx$$

$$= \int \frac{4}{x \sqrt{(\sqrt{5})^2 - (\ln x)^2}} dx$$

$$a = \sqrt{5} \quad u = \ln x \quad du = \frac{1}{x} dx$$

$$= 4 \int \frac{1}{x \sqrt{(\sqrt{5})^2 - (\ln x)^2}} dx$$

$$= 4 \int \frac{1}{\sqrt{a^2 - u^2}} du$$

$$= 4 \arcsin \frac{u}{a} + C$$

$$= 4 \arcsin \frac{\ln x}{\sqrt{5}} + C$$

$$5. \int \frac{\cos x}{3 + \sin^2 x} dx$$

$$= \int \frac{\cos x}{(\sqrt{3})^2 + (\sin x)^2} dx$$

$$a = \sqrt{3} \quad u = \sin x \quad du = \cos x dx$$

$$= \int \frac{1}{a^2 + u^2} du$$

$$= \frac{1}{a} \arctan \frac{u}{a} + C$$

$$= \frac{1}{\sqrt{3}} \arctan \frac{\sin x}{\sqrt{3}} + C$$