SAVARANKIŠKAI:

1. $\int \frac{\sin(1-5x)}{\cos^2(1-5x)} dx$

2. $\int \frac{dx}{e^{10x-3}}$

3. $\int \frac{\sin(7x)}{3+2\cos^2(7x)} dx$

4. $\int \frac{dx}{(3+\text{tg}^2(5x))\cos^2(5x)}$

ATSAKYMAI 2-5 lape!!!

1. $\int \frac{\sin(1-5x)}{\cos^2(1-5x)} dx =$

$$= \left[ \begin{array}{c} d(\cos(1-5x)) = -\sin(1-5x)\cdot(-5)dx \\ dx = \dfrac{d(\cos(1-5x))}{5\sin(1-5x)} \end{array} \right] =$$

$$= \int \frac{\sin(1-5x)}{\cos^2(1-5x)} \frac{d(\cos(1-5x))}{5\sin(1-5x)} =$$

$$= \frac{1}{5}\int \frac{d(\cos(1-5x))}{\cos^2(1-5x)} =$$

$$= \frac{1}{5}\int \cos^{-2}(1-5x)d(\cos(1-5x)) =$$

$$= \frac{1}{5}\frac{\cos^{-1}(1-5x)}{-1} + C$$

2. $\int \frac{dx}{e^{10x-3}} = \int e^{-10x+3} dx =$

$$= \begin{bmatrix} d(-10x+3) = (-10)dx \\ dx = \dfrac{d(-10x+3)}{(-10)} \end{bmatrix} =$$

$$= \int e^{-10x+3} \frac{d(-10x+3)}{(-10)} =$$

$$= \frac{1}{(-10)} \int e^{-10x+3} d(-10x+3) =$$

$$= \frac{1}{(-10)} e^{-10x+3} + C$$

3. $\int \frac{\sin(7x)}{3+2\cos^2(7x)} dx =$

$$= \left[ \begin{array}{c} d\left(\sqrt{2}\cos(7x)\right) = \left(-7\sqrt{2}\right)\sin(7x)dx \\ dx = \frac{d\left(\sqrt{2}\cos(7x)\right)}{\left(-7\sqrt{2}\right)\sin(7x)} \end{array} \right] =$$

$$= \int \frac{\sin(7x)}{3+2\cos^2(7x)} \frac{d\left(\sqrt{2}\cos(7x)\right)}{\left(-7\sqrt{2}\right)\sin(7x)} =$$

$$= -\frac{1}{7\sqrt{2}} \int \frac{d\left(\sqrt{2}\cos(7x)\right)}{\left(\sqrt{3}\right)^2 + \left(\left(\sqrt{2}\right)\cos(7x)\right)^2} =$$

$$= -\frac{1}{7\sqrt{2}} \frac{1}{\sqrt{3}} arctg\left(\frac{\sqrt{2}\cos(7x)}{\sqrt{3}}\right) + C$$

4. $\int \frac{dx}{(3+\mathrm{tg}^2(5x))\cos^2(5x)} =$

$$= \begin{bmatrix} d(tg(5x)) = \dfrac{5}{\cos^2(5x)}dx \\ dx = \dfrac{d(tg(5x))}{5} \cdot \cos^2(5x) \end{bmatrix} =$$

$$= \frac{1}{5}\int \frac{d(tg(5x)) \cdot \cos^2(5x)}{(3 + \mathrm{tg}^2(5x))\cos^2(5x)} =$$

$$= \frac{1}{5}\int \frac{d(tg(5x))}{\left(\left(\sqrt{3}\right)^2 + \mathrm{tg}^2(5x)\right)} =$$

$$= \frac{1}{5}\frac{1}{\sqrt{3}} arctg\,\frac{tg(5x)}{\sqrt{3}} + C$$