

$$1. \int \frac{2x}{x^2 + 1} dx$$

$$2. \int \frac{8dx}{x^2 + 100}$$

$$3. \int_0^{\pi/4} 7 \tan^5 x \sec^2 x$$

$$4. \int x \sin(x^2) dx$$

$$5. \int x \cos x dx$$

$$6. \int \frac{x - 13}{2x^2 - 7x + 3} dx$$

7. Find the exact solution: $\frac{dy}{dx} = \frac{y}{3} \left(1 - \frac{x}{4} \right) \quad y(0) = 2$

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

2. $\int_0^1 \frac{x^3 dx}{x^4 + 1}$

3. $\int \frac{dx}{25x^2 + 1}$

4. $\int x e^{x^2} dx$

5. $\int x \sin(2x) dx$

6. Find the particular solution if $\frac{dy}{dx} = \frac{x^3}{y(1+x^4)}$ $y(0) = -1$