

WORKSHEET 06/14/2016

1. Use (if necessary) integration by parts method to evaluate the following integrals :

$$\int x^2 \sin(x) dx \qquad \int (x^2 - 2x + 1)e^{2x} dx \qquad \int x \sec^2(x) dx$$

$$\int e^{-2x} \sin 2x dx \qquad \int e^{\sqrt{3s+9}} ds \qquad \int_0^{\frac{\pi}{3}} x \tan^2 x dx$$

$$\int \frac{e^{\sqrt{x}}}{\sqrt{x}} dx \qquad \int \sqrt{x} e^{\sqrt{x}} dx$$

2. Evaluate the following trigonometric integrals:

$$\int \cos^3 4x dx \qquad \int \cos^3 2x \sin^5 2x dx \qquad \int_0^{\pi} 16 \sin^2 x \cos^2 x dx$$

$$\int_0^{\pi} \sqrt{1 - \cos^2 t} dt \qquad \int_{\frac{\pi}{3}}^{\frac{\pi}{2}} \frac{\sin^2 x}{\sqrt{1 - \cos x}} dx \qquad \int \sec^2 x \tan^2 x dx$$

$$\int \sec^4 x \tan^2 x dx \qquad \int \sin 3x \cos 5x dx \qquad \int \sec^3 x dx$$

3. Use trigonometric substitution to find these integrals:

$$\int_0^{3/2} \frac{1}{\sqrt{9-x^2}} dx \qquad \int \frac{2}{x^3 \sqrt{x^2-1}} dx, x > 1 \qquad \int_{-2}^2 \frac{1}{4+x^2} dx$$

$$\int \frac{\sqrt{y^2-25}}{y^3} dy, y > 5$$