

Name: Nwaiye Sylvester Chukwuka, U

Department: mechatronics

matric No: 14/ENIG 05/01/2

Course code: maths 104

Find the Integral of the following

1) $x^2 \sin x \, dx$

Solution

$$-\infty < x < \infty$$

2) $3te^{2t} \, dt$

Solution

$$3te^{2t} \, dt = 6te^{2t} \, dt$$

$$= 6te^{2t} \, dt$$

$$= 6te^{2t+1} \, dt$$

$$= 6te^{2t} \, dt$$

3) $2x \ln x \, dx$

Solution

$$2x \ln x \, dx = 4x \ln x \, dx$$

$$= 4x \ln x \, dx$$

$$= 4x \ln x^{1+1} \, dx$$

$$= 4x \ln x^2 \, dx$$

$$= 4x \ln x^2 \, dx$$

4) $(2x - 3x^2) / (1-x) \, dx$

Solution

$$\frac{2x - 3x^2}{1-x} = \frac{2x}{1-x} - \frac{3x^2}{1-x}$$

$$\frac{2x}{1-x}$$

$$\frac{3x^2}{1-x}$$

$$\frac{2x - 3x^2}{1-x} \, dx$$

$$1-x$$

$$\frac{2x - 3x + 2}{1-x} = -\frac{4x}{1-x}$$

$$\frac{2x - 3x + 2}{1-x}$$

$$2x - 3x + 2 = -4x$$

~~$$\frac{2x - 3x + 2}{1-x}$$~~

$$2x - 3x + 2$$

$$= 2x - 6x$$

$$= -4x$$

$$= -\frac{4x}{1-x} = -\frac{4x}{1-x}$$

$$= -\frac{4x}{1-x}$$

$$-x + 1 \, dx$$

$$= -\frac{4x \, dx}{1-x}$$

