

**Substituin in multiple integrals,
triple integrals
Mathematics A2
14th week**

1. Using double integral find the area of the region bounded by the curves:

$$y = \sqrt{x}, y = 2\sqrt{x}, xy = 1, xy = 2.$$

2. Find the volume of the solid bounded by the surfaces $z = 1 - x^2 - 2y^2, z = 0$.

Find the following triple integrals:

3.
$$\int_{-1}^1 \int_{-1}^1 \int_{-1}^1 (x + y + z) dx dy dz$$

4.
$$\iiint_R x dV$$
, where R is the pyramid bounded by the following planes:

$$x + y + z = 1, x = 0, y = 0, z = 0,$$

5.
$$\iiint_R dV$$
, where R is the prism bounded by the following planes:

$$x + z = 2, x = 0, y = 0, y = 2, z = 0,$$

6.
$$\iiint_R (y + 3) dV$$
, where R is the cylinder bounded by the surfaces:

$$x^2 + y^2 = 4, z = 0, z = 5.$$