Sec-4

Ans-2

Double Integral

The definite integral can be extended of function of more than one variable consider for example a function of two variables

$z = f(x,y)$ The double integral of function $f(x,y)$ is denoted by

$$\iint_R f(x,y)\, dA$$

where R is the region of integration in the xy, plane

if the definite integral $\int_a^b f(x)$

dx of a function of one variable $f(x) \geq 0$ is the area under the curve $f(x)$

from $x = a$ to $x = b$, then the double integral is equal to the volume under the surface $z = f(x,y)$ and above the xy-plane in the region of integration R (figure 1)