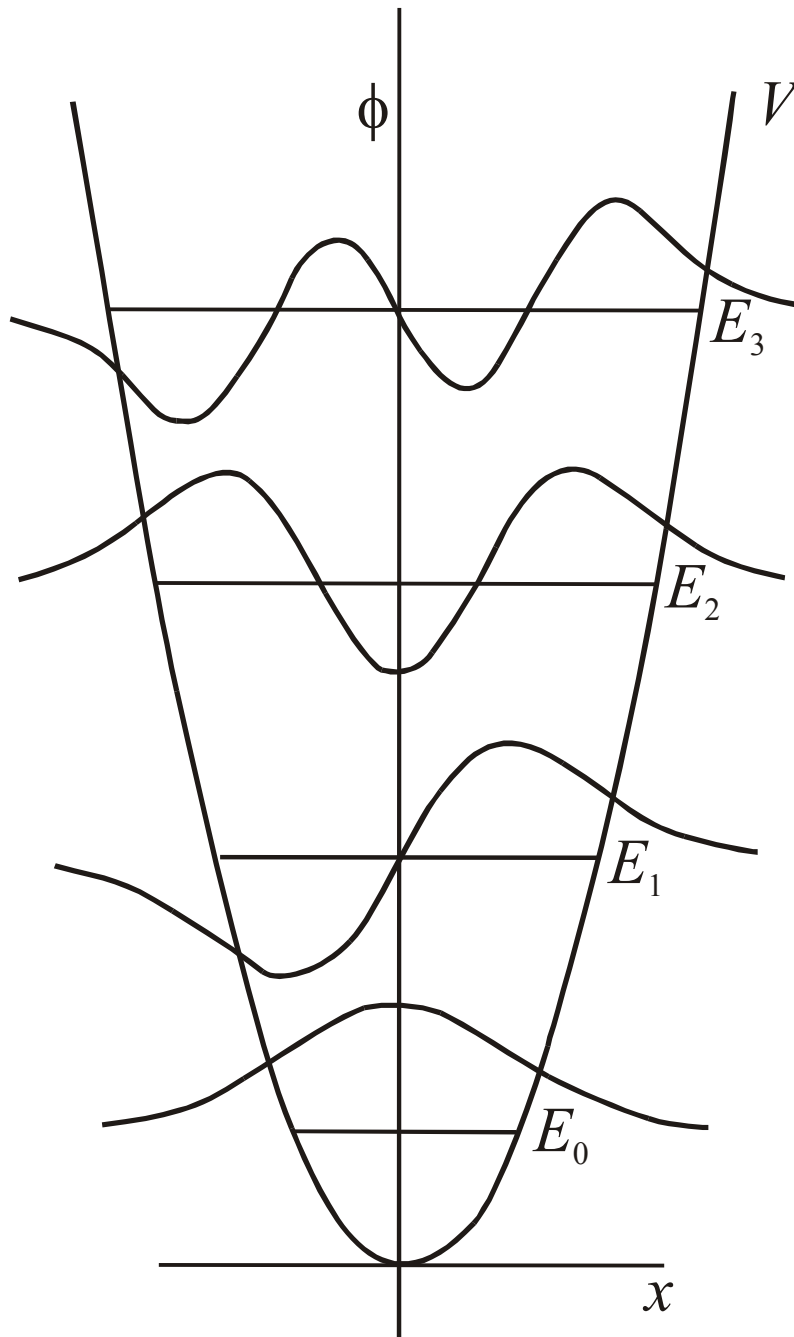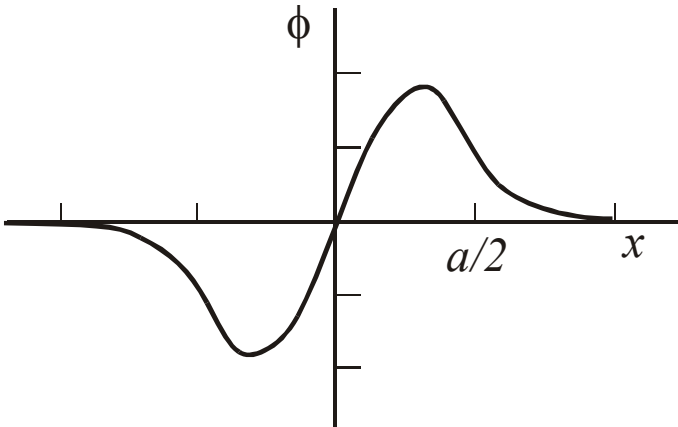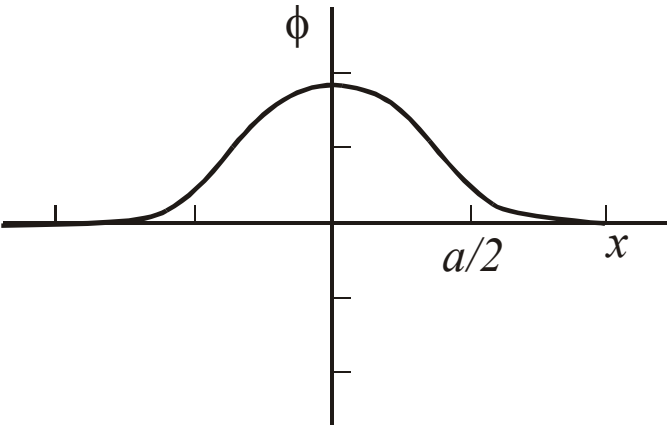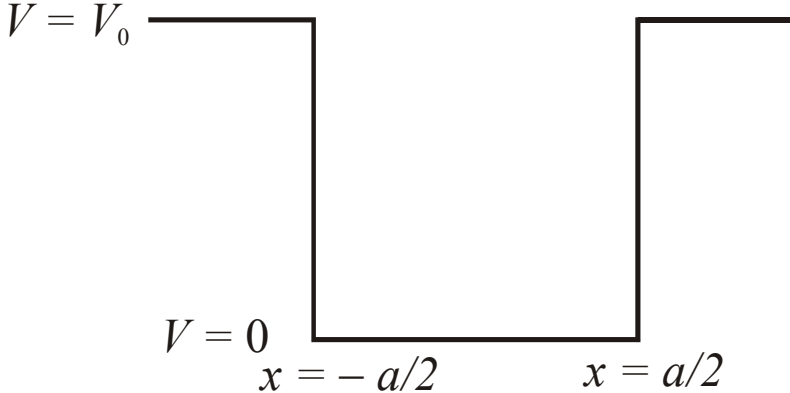Illustrations of (i) spatial continuity and discontinuity in one dimension (ii) the meaning of the term single valued.
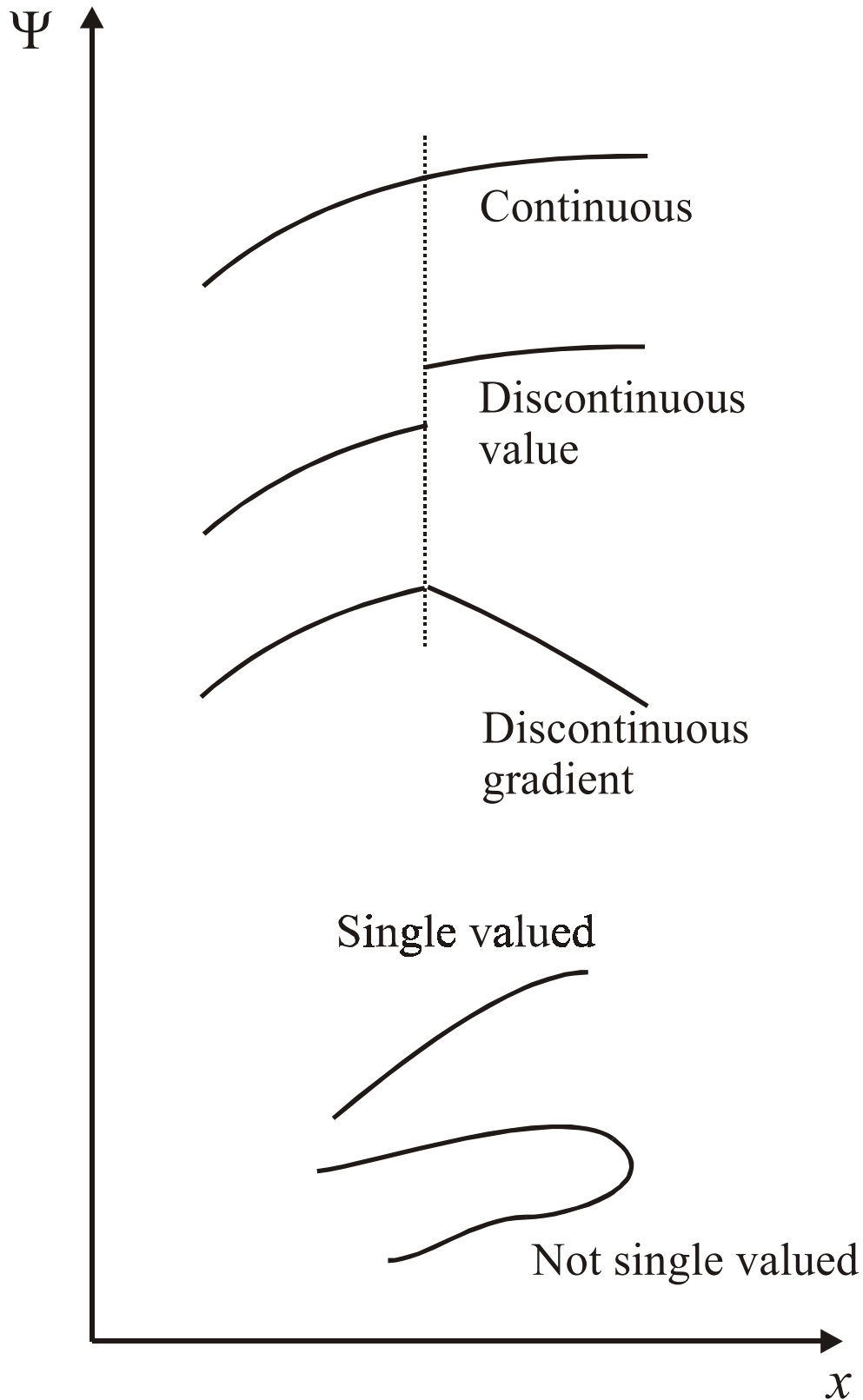
Simple harmonic oscillator potential and the four lowest
energy eigenvalues and associated eigenfunctions.

ϕ

V

E_3

E_2

E_1

E_0

x

Finite square well potential and the energy eigenfunctions of the two lowest states.

$V = V_0$

$V = 0$

$x = -a/2$

$x = a/2$

ϕ

$a/2$

x

ϕ

$a/2$

x

Infinite square well potential and the four lowest energy
eigenvalues and associated eigenfunctions.
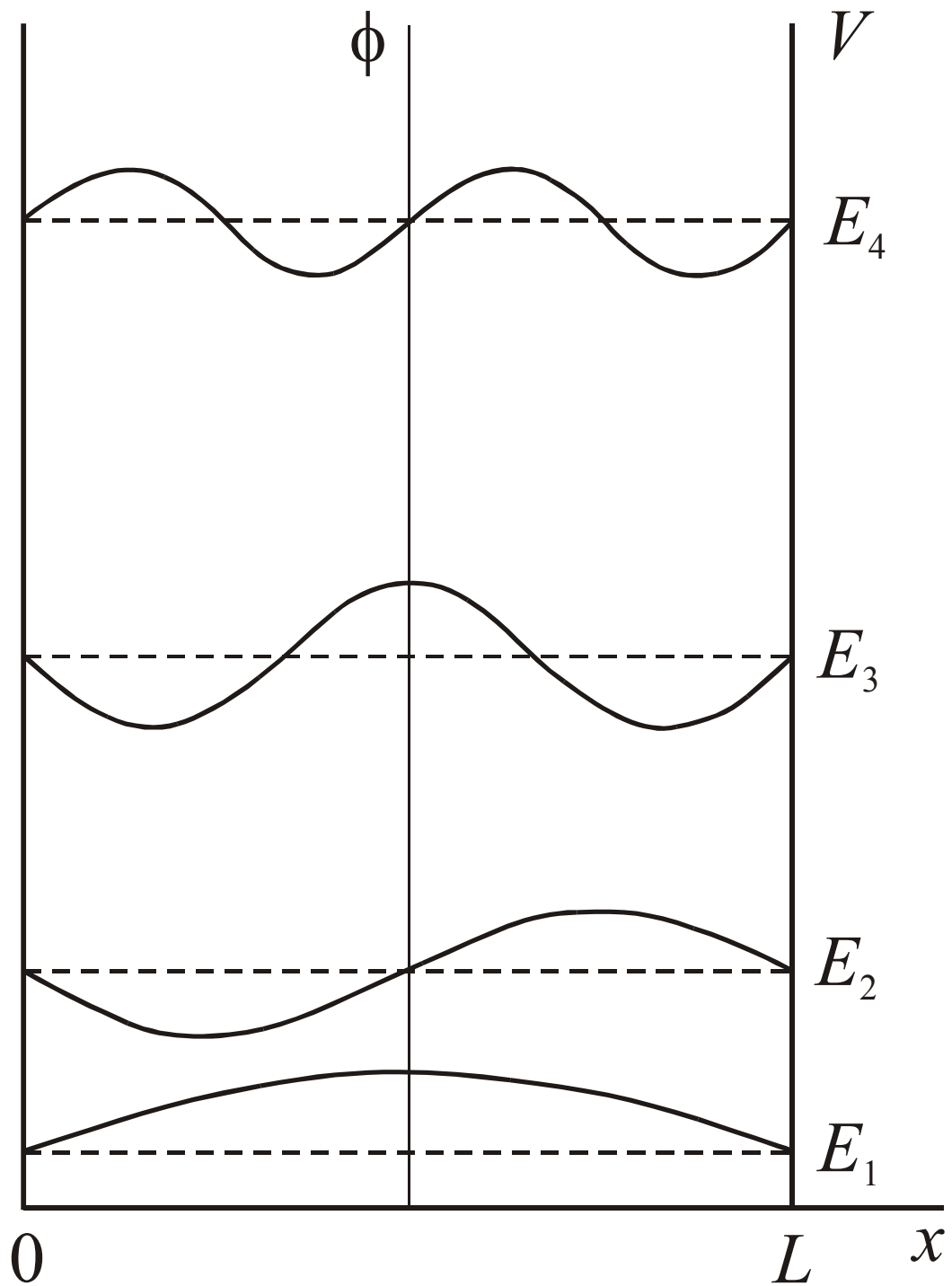
Spherical polar coordinate system.
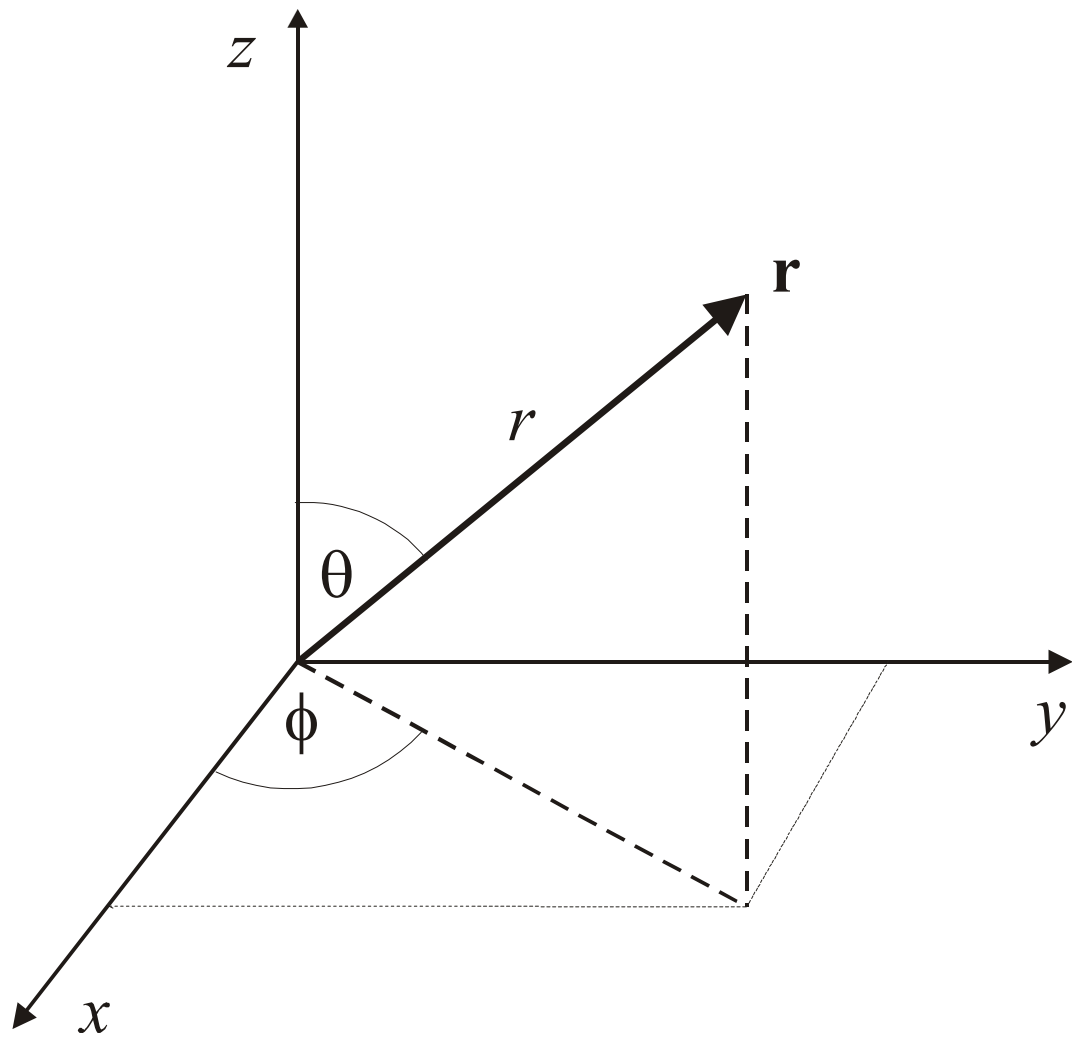
Differential volume element in spherical polar coordinates.

z

$\delta\phi$ $r\sin\theta$

θ r δr

$\delta\theta$

Vol $= r^2\sin\theta \; \delta\theta \; \delta\phi \; \delta r$