Answer on Question #48842, Physics, Other

Task:

The potential energy for a force field F is given by U(x,y)=sin(x+y). The magnitude of the force acting on the particle of mass m at(0,180/4) is

(1)1

(2)squareroot(2)

(3)1/squareroot(2)

(4)0

Solution:

$$F(0,180/4) = \left| -\left(\frac{dU}{dx}\bar{e}_x + \frac{dU}{dy}\bar{e}_y\right)\right| = 2\cos(0+180/4) = \sqrt{2}$$