An object is moving in a circular path of diameter 20 cm. The frequency of rotation is 3 rev/sec. What is the speed of the object?

Given:

Diameter: $d = 20\ cm = 0.2\ m$

radius: $r = 10\ cm = 0\ .1\ m$

Frequency of rotation: $f = 3\ rev/sec$

Determine: speed of the object: v

$v = \omega \times r$ ----------(1)

"ω" is the angular speed in radians / second.

$\omega = 2\pi f = 2 \times 3.14 \times 3 = 18.84\ rad/sec$

Substituting for "ω" and "r" in (1):

$v = 18.84 \times 0.1 = 1.9\ m/s$