Answer on Question 57763, Physics – Mechanics | Relativity

Question:

A bug completes one lap along the edge of a circular planter of radius $23.6\,cm$ in $17.59\,s$. How fast was it travelling?

Solution:

We can find the velocity of the bug from the formula:

$$v = \frac{s}{t},$$

here, s is the distance travelling by the bug, t is time.

Let's find the distance travelling by the bug (basically, it is a circumference of the circle):

$$s = 2\pi r = 2 \cdot 3.14 \cdot 0.236\,m = 1.48\,m.$$

Then, we can substitute s into the first formula and find the velocity of the bug:

$$v = \frac{s}{t} = \frac{1.48\,m}{17.59\,s} = 0.084\frac{m}{s}.$$

Answer:

$v = 0.084\frac{m}{s}$.