

Homework

1) One day an Neptune takes about 16 hours and ~~Neptune~~ Neptune makes a complete orbit around the sun in about 165 Earth years. Sometimes, Neptune is ~~even~~ even farther from the sun than dwarf planet Pluto.

2) Circumference = $2\pi R = 341\text{ m}$.

→ On using the above we get $R = 50\text{ m}$
Given that $v = 15.7\text{ m/s}$.

a) Distance moved equals to $\pi R = 3.14 \times 50 = 157\text{ m}$.

b) Displacement = Diameter = $2R = 100\text{ m}$.

c) Time taken by the cyclist to reach from one end of the diameter to the other end = $\frac{157}{15.7} = 10$
→ We use the equation:

$$\text{Average velocity} = \frac{\text{Displacement}}{\text{Time}} = \frac{100}{10} = 10\text{ m/s}$$

① Average acceleration = $\frac{\text{change in velocity}}{\text{Time}} = \frac{V_2 - V_1}{T}$

⇒ $\frac{15.7 - (-15.7)}{10} = 3.14 \text{ m/s}^2$

② a) Circular motion is a movement of an object along the circumference of a circle or rotation along a circular path.

b) Circumference of the orbit = $2\pi \times 42250 \text{ km}$
= 265571.42 km .

Time taken for the orbit = 24 hrs

Therefore, speed of the satellite = 11065.4 km/h .

