

Solutions

Each answer shows the steps, then the **result**.

2.1

- the Earth spinning (rotating) on its axis

2.2

- gravity / the Sun's gravitational attraction

3.1 B

- the Sun's gravity is weaker further out, so outer planets move more slowly

3.2

(a) $v = 2\pi r/T$

$$v = \frac{2\pi(4.0 \times 10^8 \text{ m})}{2.0 \times 10^6 \text{ s}} = \mathbf{1.3 \times 10^3 \text{ m/s}}$$

(b) it decreases (gets weaker)

3.3

- as the comet comes closer, its gravitational potential energy falls
- by conservation of energy this becomes kinetic energy, so it speeds up