

HOMWORK HELP

CREWE LIBRARY

Monday 15th January 3.30 - 4.30pm

Wednesday 17th January 3.30 - 4.30pm





Staff, books and our specialist eResources will all be available to help you complete your homework.

22. Satellite 1 makes a circular orbit around the Earth with a radius $r_1 = R$. Satellite 2 makes a circular orbit around the Earth with a radius $r_2 = 2R$. We let v represent the speed of a satellite and a represent the magnitude of a satellite's acceleration. Which one of the following choices gives the correct relation between the speeds and accelerations of the satellites?

- (A) $v_2 = \frac{1}{\sqrt{2}}v_1$; $a_2 = \frac{1}{4}a_1$
- (B) $v_2 = \frac{1}{2}v_1$; $a_2 = \frac{1}{4}a_1$
- (C) $v_2 = \frac{1}{\sqrt{2}}v_1$; $a_2 = \frac{1}{2}a_1$

- (D) $v_2 = \frac{1}{2}v_1$; $a_2 = \frac{1}{2}a_1$
- (E) $v_2 = v_1$; $a_2 = \frac{1}{2}a_1$

23. A car moves with constant speed around a horseshoe-shaped path as shown with the arrows in the figure. Which one of the following choices best describes the direction of the average acceleration of the car in traveling from W to X?

- (A) 
- (B) 
- (C) 
- (D) 
- (E) There is no average acceleration

24. A mass on a frictionless incline has a gravitational force F_g acting vertically downwards. The mass remains at rest and the incline makes an angle θ with the horizontal. Which one of the following choices best describes the orientation of the force F applied to the mass, parallel to the incline and pointing upward, parallel to the incline?

- (A) The applied force F is vertically upwards.
- (B) The applied force F is perpendicular to the incline.
- (C) The applied force F is vertically downwards.
- (D) The applied force F is perpendicular to the horizontal.
- (E) This is a completely impossible situation.

