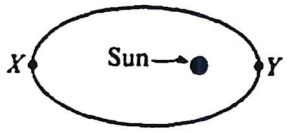


20. A satellite travels around the Sun in an elliptical orbit as shown above. As the satellite travels from point X to point Y, which of the following is true about its speed and angular momentum?

	Speed	Angular Momentum
(A)	Remains constant	Remains constant
(B)	Increases	Increases
(C)	Decreases	Decreases
(D)	Increases	Remains constant
(E)	Decreases	Remains constant

21. A newly discovered planet, "Cosmo," has a mass that is 4 times the mass of the Earth. The radius of the Earth is R_e. The gravitational field strength at the surface of Cosmo is equal to that at the surface of the Earth if the radius of Cosmo is equal to

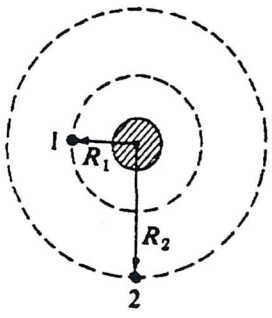
(A) $\frac{1}{2} R_e$

(B) R_e

(C) $2R_e$

(D) $\sqrt{R_e}$

(E) R_e^2



22. Two artificial satellites, 1 and 2, orbit the Earth in circular orbits having radii R_1 and R_2, respectively, as shown above. If $R_2 = 2R_1$, the accelerations a_2 and a_1 of the two satellites are related by which of the following?

(A) $a_2 = 4a_1$

(B) $a_2 = 2a_1$

(C) $a_2 = a_1$

(D) $a_2 = \frac{a_1}{2}$

(E) $a_2 = \frac{a_1}{4}$