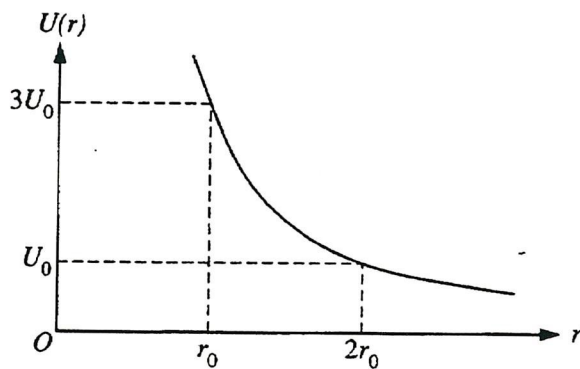


Questions 16-17 refer to the following graph, which represents a hypothetical potential energy curve for a particle of mass  $m$ .



16. If the particle is released from rest at position  $r_0$ , its speed at position  $2r_0$  is most nearly

- (A)  $\sqrt{\frac{8U_0}{m}}$   
 (B)  $\sqrt{\frac{6U_0}{m}}$   
 (C)  $\sqrt{\frac{4U_0}{m}}$   
 (D)  $\sqrt{\frac{2U_0}{m}}$   
 (E)  $\sqrt{\frac{U_0}{m}}$

17. If the potential energy function is given by

$$U(r) = br^{-3/2} + c, \text{ where } b \text{ and } c \text{ are constants,}$$

which of the following is an expression for the force on the particle?

- (A)  $\frac{3b}{2} r^{-5/2}$   
 (B)  $\frac{3b}{2} r^{-1/2}$   
 (C)  $\frac{3}{2} r^{-1/2}$   
 (D)  $2br^{-1/2} + cr$   
 (E)  $\frac{2b}{5} r^{-5/2} + cr$