



Video Solution on Website:-

<https://physicsaholics.com/home/courseDetails/41>

Video Solution on YouTube:-

[https://youtu.be/j4jjZ\\_XFZgA](https://youtu.be/j4jjZ_XFZgA)

Written Solution on Website:-

<https://physicsaholics.com/note/notesDetails/85>

Q 1. A projectile is projected upward with speed 2 m/s on an incline plane of inclination  $30^\circ$  at an angle of  $15^\circ$  from the plane. Then the distance along the plane where projectile will fall is:

(a)  $\frac{4}{15}$

(b)  $\frac{4}{5} \left( \frac{1}{\sqrt{3}} + \frac{1}{3} \right)$

(c)  $\frac{4}{5} \left( \frac{1}{\sqrt{3}} - \frac{1}{3} \right)$

(d)  $\frac{4}{\sqrt{3}} \left( \frac{1}{\sqrt{3}} - \frac{1}{3} \right)$

Q 2. A projectile is projected with speed  $u$  at an angle of  $60^\circ$  with horizontal from the foot of an inclined plane. If the projectile hits the inclined plane horizontally, the range on inclined plane will be:

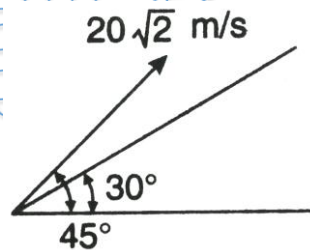
(a)  $\frac{u^2(\sqrt{21})}{2g}$

(b)  $\frac{3u^2}{4g}$

(c)  $\frac{u^2}{2g}$

(d)  $\frac{u^2(\sqrt{21})}{8g}$

Q 3. Find time of flight of the projectile along the inclined plane as shown in figure: ( $g = 10 \text{ m/s}^2$ )



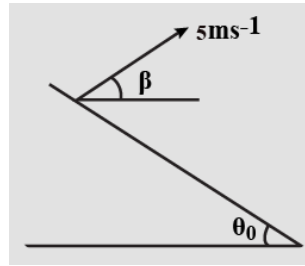
(a) 2 sec

(b) 1.69 sec

(c) 2.69 sec

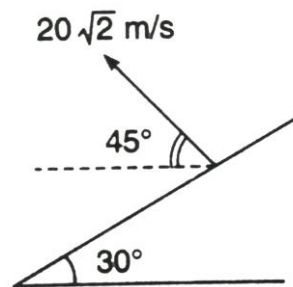
(d) 1 sec

Q 4. An inclined plane makes an angle  $\theta_0 = 30^\circ$  with the horizontal. A particle is projected from this plane with a speed of 5 m/s at an angle of elevation  $\beta = 30^\circ$  with the horizontal as shown in Fig. Find the range of the particle on the plane when it strikes the plane: ( $g = 10 \text{ m/s}^2$ )



- (a)  $5 m$  (b)  $\frac{5}{3} m$   
 (c)  $\frac{5}{2} m$  (d)  $\frac{2}{5} m$

Q 5. Find time of flight of the projectile along the inclined plane as shown in figure: ( $g = 10 m/s^2$ )



- (a)  $5 sec$  (b)  $6.31 sec$   
 (c)  $3.31 sec$  (d)  $2.21 sec$

Q 6. A particle is projected with a velocity of  $30 m/s$  at an angle  $60^\circ$  above the horizontal on a slope of inclination  $30^\circ$ . Find its range and time of flight: ( $g = 10 m/s^2$ )

- (a)  $30 m, \sqrt{3} s$  (b)  $30 m, 2\sqrt{3} s$   
 (c)  $60 m, 2\sqrt{3} s$  (d)  $60\sqrt{3} m, 2 s$

Q 7. A particle is projected with a velocity of  $30 m/s$  at an angle  $60^\circ$  above the horizontal on a slope of inclination  $30^\circ$ . Find its angle of hit with incline: ( $g = 10 m/s^2$ )

- (a)  $30^\circ$  (b)  $60^\circ$   
 (c)  $90^\circ$  (d)  $45^\circ$

Q 8. A projectile is fired horizontally from an inclined plane (of inclination  $45^\circ$  with horizontal) with speed =  $50 m/s$ . if  $g = 10 m/s^2$ , the range measured along the incline is:

- (a)  $500 m$  (b)  $500\sqrt{2} m$   
 (c)  $200\sqrt{2} m$  (d) none of these

Q 9. An inclined plane is making an angle  $\beta$  with horizontal. A projectile is projected from the bottom of the plane with a speed  $u$  at an angle  $\alpha$  with horizontal then its maximum range  $R_{max}$  is:

- (a)  $R_{max} = \frac{u^2}{g(1-\sin \beta)}$  (b)  $R_{max} = \frac{u^2}{g(1+\sin \beta)}$   
 (c)  $R_{max} = \frac{u}{g(1-\sin \beta)}$  (d)  $R_{max} = \frac{u}{g(1+\sin \beta)}$



- Q 10. A particle is projected from the bottom of an inclined plane of inclination  $30^\circ$ . At what angle  $\alpha$  (from the horizontal) should the particle be projected to get the maximum range on the inclined plane.
- (a)  $15^\circ$  (b)  $30^\circ$   
(c)  $45^\circ$  (d)  $60^\circ$

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## Answer Key

Q.1) c	Q.2) d	Q.3) b	Q.4) a	Q.5) b
Q.6) c	Q.7) b	Q.8) b	Q.9) b	Q.10) d