Question #80452, Physics / Other

Monkey D. Luffy stroke the golf ball with a velocity of 40m/s and an angle of 50° from the ground. What is the ball's (a) total time in the air (b) distance from the golfer after landing (c) maximum height it reached?

Solution

a) The total time in the air is

$$T = \frac{2v \sin\theta}{g} = \frac{2(40)\sin 50}{9.8} = 6.25\ s.$$

b) The distance from the golfer after landing:

$$D = \frac{v^2 \sin 2\theta}{g} = \frac{(40)^2 \sin 2(50)}{9.8} = 161\ m.$$

c) The maximum height:

$$H = \frac{v^2 \sin^2\theta}{2g} = \frac{(40)^2 \sin^2(50)}{2(9.8)} = 47.9\ m.$$