

Horizontal Projectile Motion Drills

- 1 Cupid shoots an arrow horizontally into the air with a velocity of 84 m/s from a cloud 76.66 m above the ground. How far from the cloud does the arrow land?
- 2 A certain physics teacher, frustrated by her computer, tosses it horizontally with a velocity of 6.2 m/s from the top of the school, 28.06 m high. What is the impact velocity of the computer ?
- 3 A soccer player kicks a ball at 60 m/s off a platform 18.75 m above the ground. How far from the player does the ball land?
- 4 Wile E. Coyote, in an effort to catch the Road Runner, launches a net horizontally from a gun with a muzzle velocity of 27 m/s off a cliff 192.23 m high. What is the impact velocity of the net ?
- 5 Cupid shoots an arrow horizontally into the air with a velocity of 71 m/s from a cloud 90.38 m above the ground. What is the impact velocity of the arrow ?
- 6 A soccer player kicks a ball at 47 m/s off a platform 14.02 m above the ground. What is the impact velocity of the ball ?
- 7 A soccer player kicks a ball at 71 m/s off a platform 12.23 m above the ground. How far from the player does the ball land?
- 8 A ski-jumper leaves a jump horizontally with a velocity of 20 m/s. The end of the jump is 42.31 m high. How long does it take the ski-jumper to land?
- 9 A soccer player kicks a ball at 75 m/s off a platform 13.19 m above the ground. What is the impact velocity of the ball ?
- 10 Wile E. Coyote, in an effort to catch the Road Runner, launches a net horizontally from a gun with a muzzle velocity of 35 m/s off a cliff 361.83 m high. How long does it take the net to land?

Note: $3.4E4 = 3.4 \times 10^4$. Use $g = -9,8 \text{ m/s}^2$

Answers:

1. 334 m 2. 24 m/s [75 deg down from horizontal] 3. 116 m 4. 67 m/s [66 deg down from horizontal] 5. 83 m/s [31 deg down from horizontal] 6. 50 m/s [20 deg down from horizontal] 7. 112 m 8. 2.9 s 9. 77 m/s [12 deg down from horizontal] 10. 8.6 s