SPH4U Name: Date: .

Horizontal Projectile Motion Drills

1 Evil Knievel rides his motorcycle at 35 m/s off a cliff 3.07 m above the ground. What is the impact velocity of the motorcycle ?

2 Evil Knievel rides his motorcycle at 43 m/s off a cliff 4.68 m above the ground. What is the impact velocity of the motorcycle ?

3 Wile E. Coyote, in an effort to catch the Road Runner, launches a net horizontally from a gun with a muzzle velocity of 33 m/s off a cliff 367.02 m high. How far from Wile E. does the net go?

4 A soccer player kicks a ball at 65 m/s off a platform 18.79 m above the ground. How long does it take the ball to land?

5 A cat chasing a butterfly leaps horizontally with a velocity of 6.1 m/s from a branch 6.53 m above the ground. How long does it take the cat to land?

6 Wile E. Coyote, in an effort to catch the Road Runner, launches a net horizontally from a gun with a muzzle velocity of 30 m/s off a cliff 247.12 m high. What is the impact velocity of the net ?

7 A cat chasing a butterfly leaps horizontally with a velocity of 1.9 m/s from a branch 8.37 m above the ground. What is the impact velocity of the cat ?

8 Cupid shoots an arrow horizontally into the air with a velocity of 89 m/s from a cloud 79.53 m above the ground. What is the impact velocity of the arrow ?

9 A student tosses a crumpled ball of paper horizontally into the recycling bin with a velocity of 1.7 m/s from a height of 1.15 m above the ground. How far from the first student does the popcorn go?

10 A cat chasing a butterfly leaps horizontally with a velocity of 7.6 m/s from a branch 7.96 m above the ground. How far from where he started does the cat land?

Note: 3.4E4 = 3.4 x 10^4. Use g = -9,8 m/s/s

Answers:

1. 36 m/s [13 deg down from horizontal] 2. 45 m/s [12 deg down from horizontal] 3. 286 m 4. 2.0 s 5. 1.2 s 6. 76 m/s [67 deg down from horizontal] 7. 13 m/s [82 deg down from horizontal] 8. 97 m/s [24 deg down from horizontal] 9. 8.3E-1 m 10. 9.7 m