PROBLEMS-Pick 4 of the 5 to answer

1. The mythbusters shoot a gun horizontally to test a myth about bullets falling. They shoot the bullet horizontally from a height of 1m and find that it hits the ground 35m down the range. What was the velocity of the bullet when it was shot out of the gun?
2. You find an abandoned rock quarry and discover that it is absolutely safe to jump off the side and land in the water 25m below. If you sprint off the edge at a velocity of 6.7m/s, what is your speed when you land safely in the water?
3. At the driving range, you are impressed to hit a ball 275m. Luckily, you happened to use your trusty stopwatch to time the flight of the ball (3.71s). What was the magnitude and direction of the ball’s velocity when it left your club?
4. A human cannonball is attempting to launch over a wall that is 10m tall. If he is launched at an angle of 40 degrees, what must his velocity be to ensure he clears the wall?
5. A frog hops across a stream, and lands at the same level from which he hopped. The hop is made with an initial velocity of 17 m/s at an angle of 35 degrees above the horizontal. (A) What is the horizontal component of the frog’s velocity when it lands? (B) How long is the frog in the air?

CONCEPTUAL-Answer all

1. What is the acceleration of the human cannonball man as he clears the wall?
2. At what point in his flight does the human cannonball have the greatest velocity?
3. At what point is his acceleration the greatest?
4. If your friend at the rock quarry lands 1 ½ times as far from the edge as you, how does their speed compare to yours?

How high does the person get?

