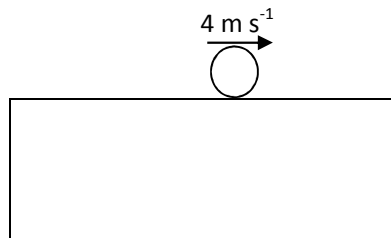


Exam Style Questions – Projectile Motion

NOTE: BE SURE TO INCLUDE UNITS WITH ALL YOUR ANSWERS

The following information relates to questions 1-3

A ball is rolling along table at 4 m s^{-1} . The ball rolls off the edge of the table and hits the ground 1.5 s later.



Question 1

Calculate the height of the table.

2 marks

Question 2

Calculate the horizontal distance that the ball lands from the table.

2 marks

Question 3

With what speed does the ball hit the ground?

3 marks

The following information relates to questions 4 to 6.

Below is a picture of Patrick and Dallas throwing ball to one another. The ball is airborne for 5 s whilst traveling from Patrick to Dallas. Patrick throws the ball with has an initial horizontal velocity of 3 m s^{-1}



Question 4

What is the distance between Patrick and Dallas?

2 marks

Question 5

What is the maximum height of the ball?

2 marks

Question 6

With what initial vertical velocity does Patrick throw the ball?

2 marks

Question 7

With what velocity does Patrick initial throw the ball? Include the angle to the horizontal with your answer.

Magnitude

Angle

3 marks

The following information relates to question 8.

A stunt driver drives up a ramp (30 degrees to the horizontal), jumps across a river and lands on an identical ramp on the other side. The stunt driver leaves the ramp at 35 m s^{-1} .



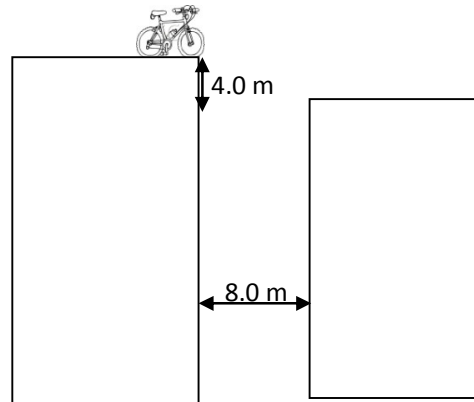
Question 8

Calculate the maximum distance the stunt driver can jump safely.

3 marks

The following information relates to questions 9 – 10

An irresponsible youth is riding her bike on along a roof top of a tall building. She plans to ride off the top of tall building and land on top of a smaller building. The distance between the buildings is 8.0 metres and their difference in height is 4.0 metres.



Question 9

Calculate the minimum speed at which the irresponsible youth should leave the tall building in order to land on the smaller building.

3 marks

Question 10

To be sure of landing on the top of the smaller building, she leaves the building at 10 m s^{-1} . Calculate the magnitude of her velocity the moment prior to her landing.

3 marks
