Strand	MECHANICS
Sub Strand	Kinematics
Content Learning Outcome	At the end of the lesson students should be able to • Apply the 3 kinematic equations to solve projectile motion problems

OBJECTS THROWN VERTICALLY UPWARDS AND IT LANDS AT THE SAME LEVEL
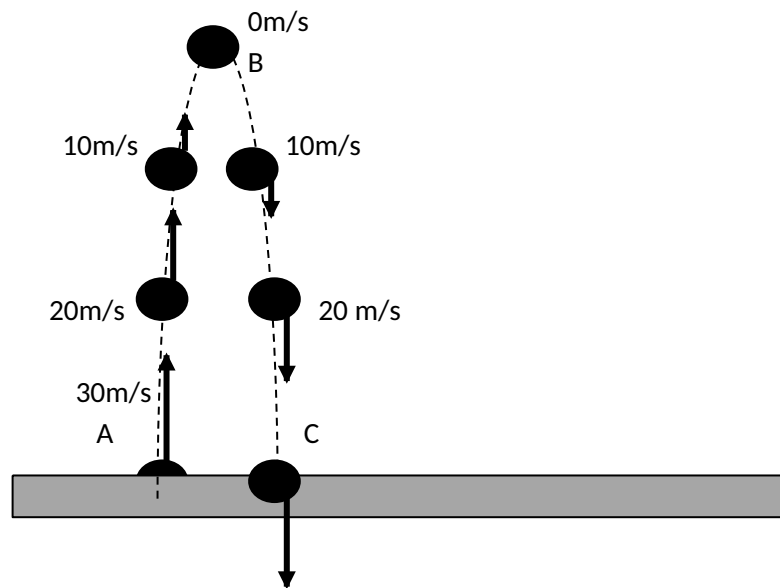
The vertical velocity of the ball decreases up till the maximum height. At the maximum height the vertical velocity is 0m/s. after the maximum height the velocity increases in the opposite direction.

TRUE/ FALSE

1. The velocity at A is equal to velocity at C
2. The speed at A is equal to speed at C
3. The acceleration decrease then increases
4. The acceleration at A is equal to acceleration at B.

Time of flight means the total time the object stays in air.

Since the motion is symmetrical, to find the maximum height and the time of flight consider half the motion only.

An object is thrown vertically upwards with a vertical velocity of 50m/s as shown.

50m/s
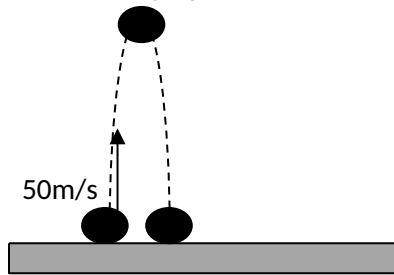
Find

    a.   Maximum height   b. time taken to reach maximum height   c. total time

1. An object is thrown vertically upwards at 60m/s and it lands at the same level. Find
   a. The maximum height reached   b. the time of flight

2. An object is thrown vertically upwards and it reaches a maximum height of 78m. find
   a. Initial vertical velocity   b. the time of flight

3. An object is thrown vertically upwards and the time of flight is 8s. find
   a. Initial vertical velocity   b. maximum height