education

Department:
Education
PROVINCE OF KWAZULU-NATAL

FET

Just-in-Time Training Workshop

2019: No. 1

Post - workshop activity

Physical Sciences

Endorsed by:

Jika iMfundo
what I do matters

SADTU
NAPTOSA
TEACH WITH DIGNITY
NATU
National Teachers' Union
Educating Our Nation

Physical Sciences Post-Workshop Assessment

This assessment consists of 7 multiple-choice questions that relate to the topic of motion. For each question you need to select the correct option by writing down the letter that corresponds with your choice of the correct answer in the space provided.

For some of the questions you will be asked to explain your answer or identify a common error or misconception that relates to an incorrect option.

1. Which one of the following physical quantities is equivalent velocity?

   A speed with direction

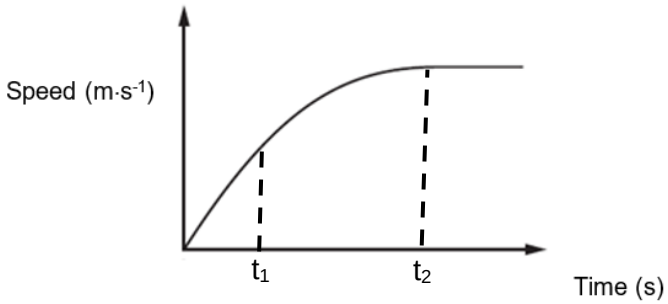
   B the rate of change of distance

   C the rate of displacement

   D to the rate of change of displacement

Answer: ____

2. The graph below shows the variation with time of the speed of a raindrop falling vertically through air.

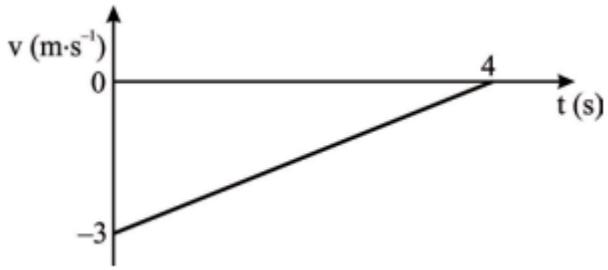


Consider the motion of the rain drop at t_1 and t_2. Which statements concerning the raindrop's motion at these times is correct?

	Motion at t_1	**Motion at t_2**
A	Constant velocity	Constant acceleration
B	Constant acceleration	Constant velocity
C	Uniform motion	Stationary
D	Slowing down	Uniform motion

Answer: ____

3. Let direction North be positive. A sketch of the velocity – time graph for a moving object is shown below.



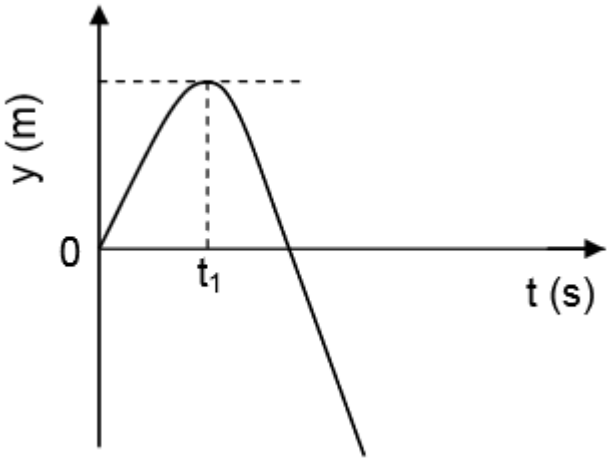
Which answer best describes the magnitude of the object's velocity and the acceleration?

	Velocity ($m.s^{-1}$)	**Acceleration ($m.s^{-2}$)**
A	Decreasing moving North	Increasing North
B	Decreasing moving South	Constant North
C	Increasing moving South	Decreasing South
D	Increasing moving North	Constant South

Answer:

Explain your thinking steps:

4. A stone is projected vertically upwards from the top of a building at a speed of v $m \cdot s^{-1}$. The position-time graph below represents the motion of the stone. Ignore the effects of air resistance.



Which ONE of the combinations below regarding the magnitudes of the stone's velocity and acceleration, at time t_1, is CORRECT?

	MAGNITUDE OF VELOCITY ($m \cdot s^{-1}$)	**MAGNITUDE OF ACCELERATION ($m \cdot s^{-2}$)**
A	0	9,8
B	0	0
C	v	0
D	v	9,8

Answer: ____

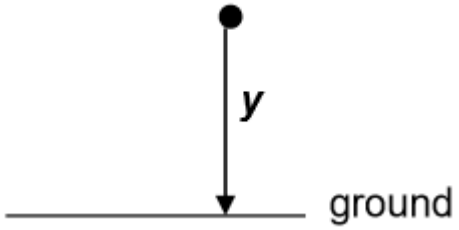
5. An object is thrown vertically upwards from the ground.

Which ONE of the following is CORRECT regarding the direction of the acceleration of the object as it moves upwards and then downwards? Ignore the effects of air resistance.

	OBJECT MOVING UPWARDS	**OBJECT MOVING DOWNWARDS**
A	Downwards	Upwards
B	Upwards	Downwards
C	Downwards	Downwards
D	Upwards	Upwards

Answer: ____

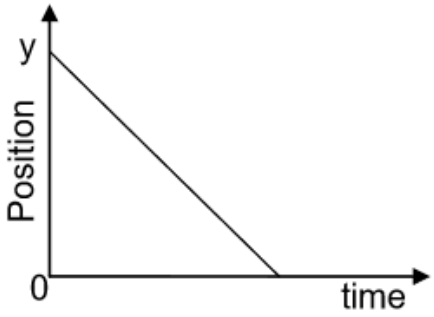
6. A small stone is dropped from a height y above the ground. It strikes the ground after time t, as shown in the diagram below.



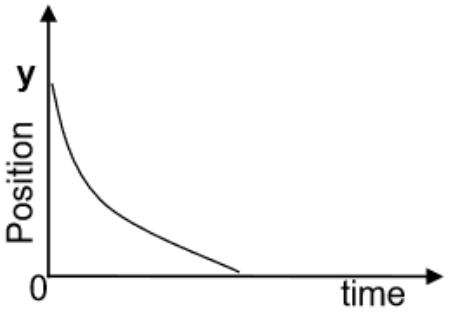
Take upwards as the positive direction and the ground as zero reference. Ignore the effects of air resistance.

Which ONE of the following diagrams shows a correct position-time graph for the motion of the stone?

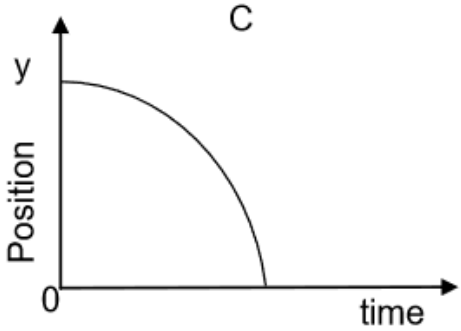
A



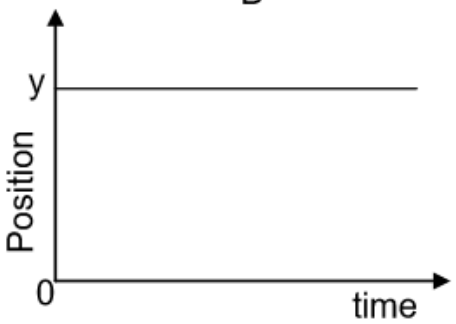
B



C



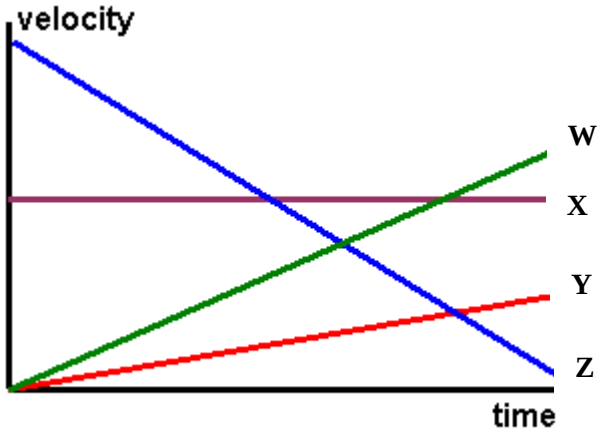
D



Answer:

Explain your thinking steps:

7. Study the velocity – time graph showing the motion of four different objects below.



A learner makes the following statements about the motion represented by the lines W, X, Y and Z

W	The instantaneous velocity is equal to the average velocity for all times in the time interval shown
X	This object travels an equal distance in every small time interval
Y	This object experiences a constant non-zero net force
Z	This object is moving in the opposite direction to the other objects.

Two of the learner's statements are correct and two are false.

Write down the correct letters in the below:

True Statements:	
False Statements:	

Identify a misconception the learner has based on one of the false statements.