



Physics Quiz

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No. of Questions: ( 2 )

Mark: (\_\_\_\_/ 13 )

Name: \_\_\_\_\_

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Grade: 9 ( )

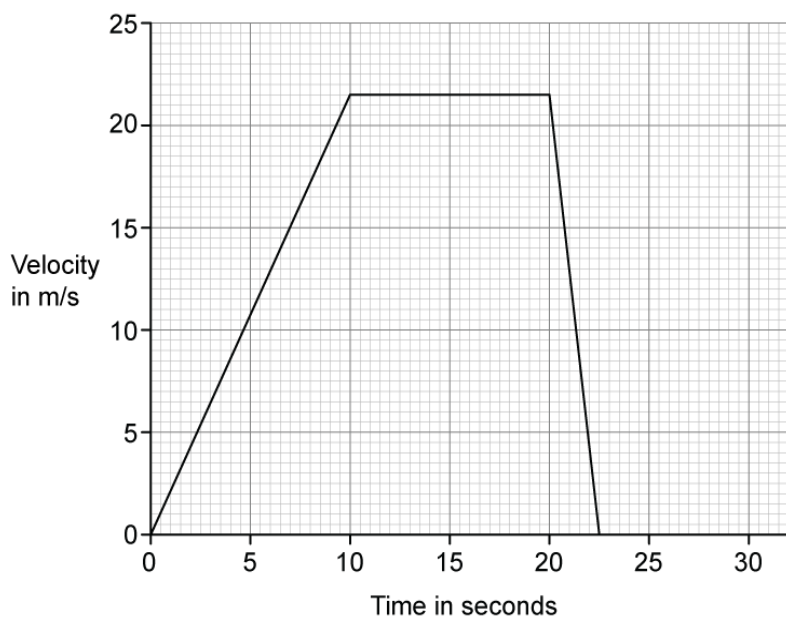
Duration: 15 min.

Form 2

Question 1:

( / 10)

The velocity-time graph shows how the velocity of a motorcycle changes with time.



- a. With reference to the graph, state and explain which part of the graph shows that the motorcycle has constant deceleration. [4]

Gradient = acceleration

the part between 20 - 22.5 shows constant deceleration because i

a constant gradient

and negative gradient

b. State the formula linking acceleration, change in velocity and time taken.

[1]

acceleration = change in velocity / time

$$a = v - u / t$$

c. Calculate the acceleration of the motorcycle between 20 and 22.5 seconds.

[2]

$$\text{acceleration} = \text{gradient} = \frac{0 - 21.5}{2.5}$$

$$\text{acceleration} = \dots\dots\dots -8.6 \dots\dots\dots \text{m/s}^2$$

d. Calculate the distance travelled between 20 and 22.5 seconds.

[3]

$$\text{distance} = \text{area under graph}$$

$$= \frac{1}{2} b h$$

$$= \frac{1}{2} \times 2.5 \times 21.5 = 26.875$$

$$\text{Distance} = \dots\dots\dots \frac{27}{26.9} \dots\dots\dots \text{m}$$

Question 2:

( / 3 )

A runner reaches a speed of  $3 \text{ m/s}$  after accelerating at  $2.25 \text{ m/s}^2$  whilst travelling a distance  $s$  of  $2 \text{ m}$ . Calculate the initial speed of the runner.

$$\begin{aligned} u &= \sqrt{v^2 - 2as} \\ &= \sqrt{3^2 - 2 \times 2.25 \times 2} \\ &= \sqrt{9 - 9} \\ &= 0 \text{ m/s} \end{aligned}$$

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