



Physics Quiz

No. of Pages: (2)

No. of Questions: (2)

Mark: (_____ / 13)

Name: _____

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Grade: 9 ()

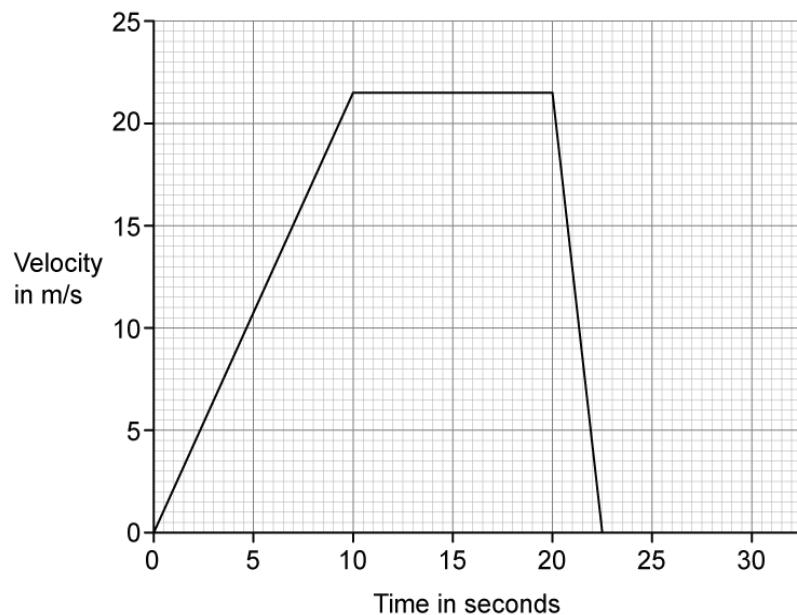
Duration: 15 min.

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]

$$\text{acceleration} = \text{change in velocity} / \text{time}$$

$$a = v-u / t$$

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

[2]

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

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

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

[3]

distance = area under graph

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

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

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

Question 2:

(/ 3)

5 A runner reaches a speed of 3m/s after accelerating at $\frac{a}{s}$ m/s² whilst travelling a distance of 2m. 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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