3.10 Physics Equations: Recall, Rearrangement and Application: 10-minute Pack

AQA 8464 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 SECTION 3: APPLICATION. Kwame cycles to school at an average speed of 4.5 m/s. His journey takes 6 minutes. Using s = vt, calculate the distance Kwame cycles to school, in metres.

(Total for Question 1 is 3 marks)

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2 More equations from the memorise list, this time on energy and momentum.

(a) Write down the equation that links momentum to mass and velocity. **(1)**

.....

(b) Write down the equation for kinetic energy in terms of mass and speed. **(1)**

.....

(c) Write down the equation for gravitational potential energy in terms of mass, gravitational field strength and height. **(1)**

.....

(d) Write down the equation that links weight to mass and gravitational field strength. **(1)**

.....

(Total for Question 2 is 4 marks)

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3 The last pair of equations from the memorise list, on waves and density.

(a) Write down the equation that links wave speed to frequency and wavelength. **(1)**

.....

(b) Write down the equation that links density to mass and volume. **(1)**

.....

(Total for Question 3 is 2 marks)

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Mark scheme · 3.10 Physics Equations: Recall, Rearrangement and Application: 10-minute Pack

Question 1

converts time to seconds: 6 x 60 = 360 s **M1**

correct substitution: s = 4.5 x 360 **M1**

s = 1620 m, cao **A1**

Answer: 1620 m (1.62 km)

Question 2

(a) momentum = mass x velocity (p = mv), oe **B1**

(a) Answer: momentum = mass x velocity (p = mv)

(b) kinetic energy = 0.5 x mass x speed^2 (KE = 0.5 m v^2), oe **B1**

(b) Answer: kinetic energy = 0.5 x mass x speed^2 (KE = 0.5 m v^2)

(c) GPE = mass x gravitational field strength x height (GPE = mgh), oe **B1**

(c) Answer: GPE = mass x gravitational field strength x height (GPE = mgh)

(d) weight = mass x gravitational field strength (W = mg), oe **B1**

(d) Answer: weight = mass x gravitational field strength (W = mg)

Question 3

(a) wave speed = frequency x wavelength (v = f λ), oe **B1**

(a) Answer: wave speed = frequency x wavelength (v = f λ)

(b) density = mass / volume (ρ = m/V), oe **B1**

(b) Answer: density = mass / volume (ρ = m/V)

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