

Compound Measures

For Pearson Edexcel GCSE Mathematics (1MA1) • Higher tier

Name _____

Total marks: **27**

Answer **all** questions in the spaces provided. Show your working: marks are given for correct method. You may use a calculator.

1 A train travels 51 km in 36 minutes.

- (a) Work out the average speed of the train.
Give your answer in km/h.

..... km/h
(2)

- (b) Write your answer to part (a) in metres per second.
Give your answer correct to 1 decimal place.

..... m/s
(1)

(Total for Question 1 is 3 marks)

- 2** A tank contains 3020 litres of water.
Water is pumped out of the tank at a rate of 48.7 litres per minute.

- (a) Work out an estimate for the time it takes to empty the tank.
Give your answer in hours.

..... hours
(3)

- (b) Is your answer to part (a) an underestimate or an overestimate?
Give a reason for your answer.

.....
.....
(1)

(Total for Question 2 is 4 marks)

- 3** A coach journey usually takes 2 hours 15 minutes at an average speed of 64 km/h.
One day, roadworks mean that the average speed for the same journey is only 48 km/h.
How many minutes longer does the journey take that day?

..... minutes
(3)

(Total for Question 3 is 3 marks)

- 4 A solid cube of side 20 cm rests on the ground.
The cube exerts a force of 600 newtons on the ground.

$$\text{pressure} = \frac{\text{force}}{\text{area}}$$

Work out the pressure on the ground.

Give your answer in newtons/m²

..... newtons/m²
(3)

(Total for Question 4 is 3 marks)

- 5 A solid block is a cuboid measuring 0.5 m by 0.3 m by 0.2 m.
When the block rests on its 0.5 m by 0.3 m face, the pressure on the ground is 2400 newtons/m²

$$\text{pressure} = \frac{\text{force}}{\text{area}}$$

The block is turned so that it rests on its 0.3 m by 0.2 m face.

Work out the new pressure on the ground.

..... newtons/m²
(3)

(Total for Question 5 is 3 marks)

- 6** A train travels 45 miles at an average speed of 60 mph and then 30 miles at an average speed of 40 mph.
Work out the average speed for the whole journey.

..... mph
(3)

(Total for Question 6 is 3 marks)

- 7** Liquid *P* and liquid *Q* are mixed in the ratio 2:3 by **mass** to make liquid *R*.
Liquid *P* has density 0.9 g/cm^3
Liquid *Q* has density 1.5 g/cm^3
Work out the density of liquid *R*.
Give your answer correct to 3 significant figures.

..... g/cm^3
(4)

(Total for Question 7 is 4 marks)

- 8** A car travels at an average speed of 90 km/h for 2 hours 40 minutes.
The car uses 6.2 litres of fuel for every 100 km it travels.
The density of the fuel is 0.74 kg per litre.

Work out the mass of the fuel the car uses on this journey.
Give your answer in kg correct to 3 significant figures.
You must show all your working.

..... kg
(4)

(Total for Question 8 is 4 marks)
