Test - Speed, density and compound units

Year: Year 8 · Duration: 45 minutes · /20

Name:	Date:	**Mark: /20**

Question	1	2	3	4	5	Total
marks	4	4	4	4	4	**20**
Mark						

Show your working.

Question 1 (4 marks)

Question 1 – Speed

Answer all parts. Show your working.

a. A car travels 135 km in 1.5 hours. Find its average speed. (1 mark)
b. How far does a cyclist travel in 2 hours 30 minutes at 14 km/h? (2 marks)
c. Convert 54 km/h to m/s. (1 mark)

Question 2 (4 marks)

Question 2 – Density

Use $\text{density} = \dfrac{\text{mass}}{\text{volume}}$.

a. A block of wood has mass 360 g and volume 450 cm³. Find its density. (1 mark)
b. Will it float in water (density 1 g/cm³)? (1 mark)
c. A metal has density 7.8 g/cm³. Find the mass of 250 cm³. (2 marks)

Question 3 (4 marks)

Question 3 – Average speed

A runner jogs 6 km in 40 minutes and then walks 2 km in 30 minutes.

a. Find the total time in hours. (1 mark)
b. Find the average speed for the whole run, in km/h. (2 marks)
c. Find the speed of the walking part in km/h. (1 mark)

Question 4 (4 marks)

Question 4 – Problem: the swimming pool

A swimming pool is 20 m long, 8 m wide and 1.5 m deep. A pump fills it at 4 000 litres

per minute. (1 m^3 = 1 000 litres.)

a. Find the volume of the pool in m^3 and litres. (2 marks)
b. How long does it take to fill? (2 marks)

Question 5 (4 marks)

Question 5 – Problem: the road trip

Jade drives 90 miles in 1 h 30 min and then 120 miles in 2 hours.

a. Find her speed for each part. (2 marks)
b. Find her average speed for the whole journey. (2 marks)