Write your name, centre number and candidate number in the boxes below.

Surname	Other names

Centre number | | | | | |

Candidate number | | | | |

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Speed, density and pressure

Time allowed: 45 minutes

Subject code **0580**

Mathematics

Questions from Paper 1, Paper 2, Paper 3 and Paper 4

You must have: a ruler marked in centimetres and millimetres, a protractor, compasses, a pen, an HB pencil and an eraser.
You may use a calculator.

Total marks

/ 36

Instructions

- Answer every question in the space provided on this paper.
- Write in black or dark blue ink. Pencil may be used for diagrams and graphs.
- Fill in your name, centre number and candidate number above.
- Show your working: a correct method can earn marks even if the answer is wrong.
- Unless a question says otherwise, give answers that are not exact to 3 significant figures, and angles in degrees to 1 decimal place.

Information

- This paper has 10 questions worth 36 marks in total.
- The marks for each question or part are shown in brackets, for example [3].

Advice

- Read every question through once before you write anything.
- Use the marks in brackets to judge how long to spend on each part.
- If you finish early, go back and check your working.

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Print at 100% (Actual size) so diagrams keep their real measurements.

1 Kiran leaves home at 9.45 am.
She drives 135 km to visit a friend.
She arrives at her friend's house at 11.15 am.

Work out her average speed in km/h.

..... km/h [2]

Speed, density and pressure Click for more variations

2 An athlete runs at a speed of 9.5 m/s.

Convert this speed into km/h.

..... km/h [2]

Speed, density and pressure Click for more variations

3 Amar cycles at a speed of 18 km/h.
It takes him 55 minutes to cycle between two villages.

Calculate the distance between the two villages.

..... km [2]

Speed, density and pressure Click for more variations

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4 A car travels a distance of 1280 **metres** at an average speed of 64 kilometres per hour.

Calculate the time it takes for the car to travel this distance.
Give your answer in **seconds**.

Answer ..... s [3]

Speed, density and pressure Click for more variations

5 A car of length 4.3 m is travelling at 105 km/h.
It passes over a bridge of length 36 m.

Calculate the time, in seconds, it takes to pass over the bridge **completely**.

..... s [3]

Compound measures Click for more variations

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6 Beatrice walks 1 km at a speed of 4 km/h and then 2 km at a speed of 4.5 km/h.

Work out Beatrice's average speed for the whole journey.

..... km/h [3]

Speed, density and pressure Click for more variations

7 A bar of gold in the shape of a cuboid has dimensions 2 cm by 4 cm by 6.5 cm.
The density of gold is 19.32 g/cm^3.

Calculate the mass of this bar of gold.

$\left[\text{Density} = \frac{\text{mass}}{\text{volume}}\right]$

..... g [3]

Speed, density and pressure Click for more variations

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8 There is a straight road between town A and town B of length 130 km.

Maxi travels from town A to town B.
Pippa travels from town B to town A.
Both travel at a constant speed of 40 km/h.
Maxi leaves 30 minutes before Pippa.

Work out how far from town A they will be when they pass each other.

..... km [4]

Speed, density and pressure Click for more variations

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9 **(a)** Sara rides her bicycle at a speed of 420 metres per minute.

Work out her speed in kilometres per hour.

..... km/h [2]

(b) Jan cycles a distance of 51 km.
She starts at 11 55.
She has a rest stop for 25 minutes.
She finishes at 14 41.

Calculate her average speed, in km/h, **for the time she is cycling**.

..... km/h [4]

(a) Compound measures (b) Speed, density and pressure Click for more variations

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10 **(a)** Naomi runs 100 m in 15 seconds.

Calculate Naomi's average speed in kilometres per hour.

..... km/h [2]

(b) Olav runs for 45 minutes at a speed of 9.5 km/h.
He then runs 8.1 km at a speed of 7.5 km/h.

Calculate Olav's average speed for the whole run.

..... km/h [3]

(c) A train has length p metres.
The train passes through a station of length q metres.
The speed of the train is v kilometres per hour.

Find an expression for the time the train takes to completely pass through the station.
Give your answer in seconds, in terms of p, q and v.

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..... s [3]

(a) Speed, density and pressure (b) Speed, density and pressure (c) Compound measures

Click for more variations