

Non-calculator Questions

City & Guilds

1.

A woman needs to work out how long it will take to drive to York.

She checks the journey on a website.

The distance from her house to York is 80 miles.

20 miles of the journey are through roadworks with a speed restriction of 40mph.

She should drive the rest of the journey at an average speed of 50mph

How long should the journey take?

Show your working

Time taken hours minutes

(3 marks)

Highfield

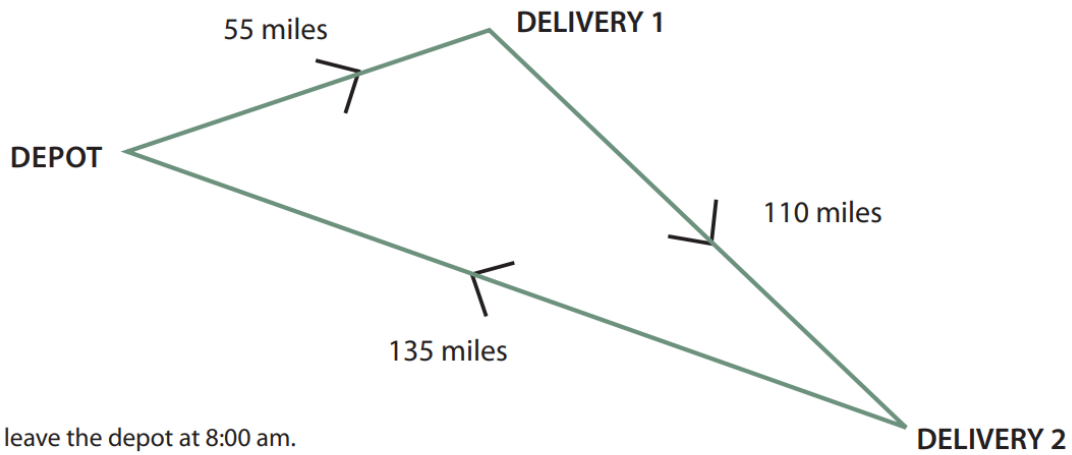
2.

You are planning the delivery of furniture to 2 customers.

You expect that:

- you will drive at an average speed of 50mph
- unloading each delivery will take 30 minutes

This is the route you take:



You leave the depot at 8:00 am.

What time would you return to the depot if everything went to plan?

Show your working out and write the answer in the box below.

(3 marks)

Answer: _____

AQA

3.

Lisa has to drive 50 miles to the market.

The market starts at 9 am

She needs to arrive at least half an hour before the market starts.

She leaves home at 7.10 am

Lisa says,

“If I drive at an average of 40 miles per hour I will be there in time.”

Is she correct?

You **must** show your working.

[3 marks]

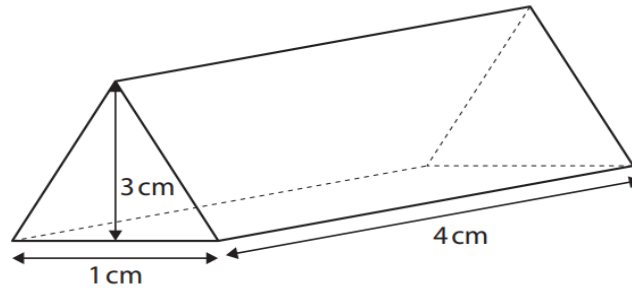
Calculator Questions

Edexcel

1.

Jack is a jeweller.

He makes a pendant in the shape of a triangular prism as shown in the diagram.



Jack makes the pendant from solid gold.

He uses this formula.

$$V = TL$$

where V = volume of a triangular prism (cm^3)
 T = area of the triangular face (cm^2)
 L = length of the prism (cm)

Jack knows that

- mass = density \times volume
- the density of gold is 19 grams per cm^3
- the cost of 1 gram of gold is £40

Jack sells the pendant for £382 more than the total cost of the gold needed to make the pendant.

How much does Jack sell the pendant for? (6)

£

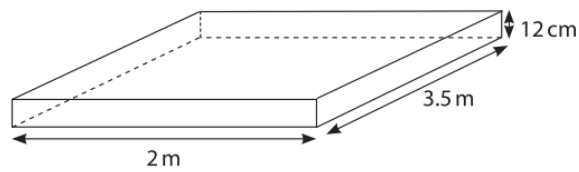
2.

Nicola wants to put a flat roof on a bike store.

The roof will be

- made of concrete
- in the shape of a cuboid as shown.

$$\text{Density} = \frac{\text{mass}}{\text{volume}}$$



Nicola wants to put a metal strip along 2 of the longest edges of the roof.

She knows

- the density of concrete is 2300 kg per m^3
- the mass of 1 metre of metal strip is 5 kg.

Work out the total mass of the concrete and the strips she wants.

(5)

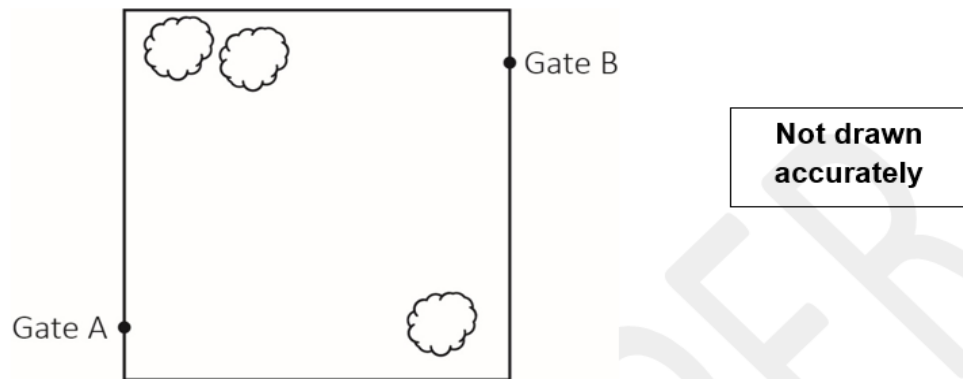
kg

3.

At 20:40 a witness saw the suspect entering the park at Gate A.

Another witness saw the same person leaving the park through Gate B exactly 12 minutes later.

The group are given this map of the park:



The map has a scale of 1 : 25 000

The distance between Gates A and B on the map is 9 cm

What was the average speed of the person seen entering and leaving the park?

Give your answer in metres per second (m/s).

[3 marks]

Blank area for working out the solution.

Your answer:

m/s

4.

Kamrul wants to reduce the amount of water he uses at home.

He uses the kitchen tap for 350 days a year for 20 minutes each day.

The flow rate of his kitchen tap is 5.5 litres per minute.

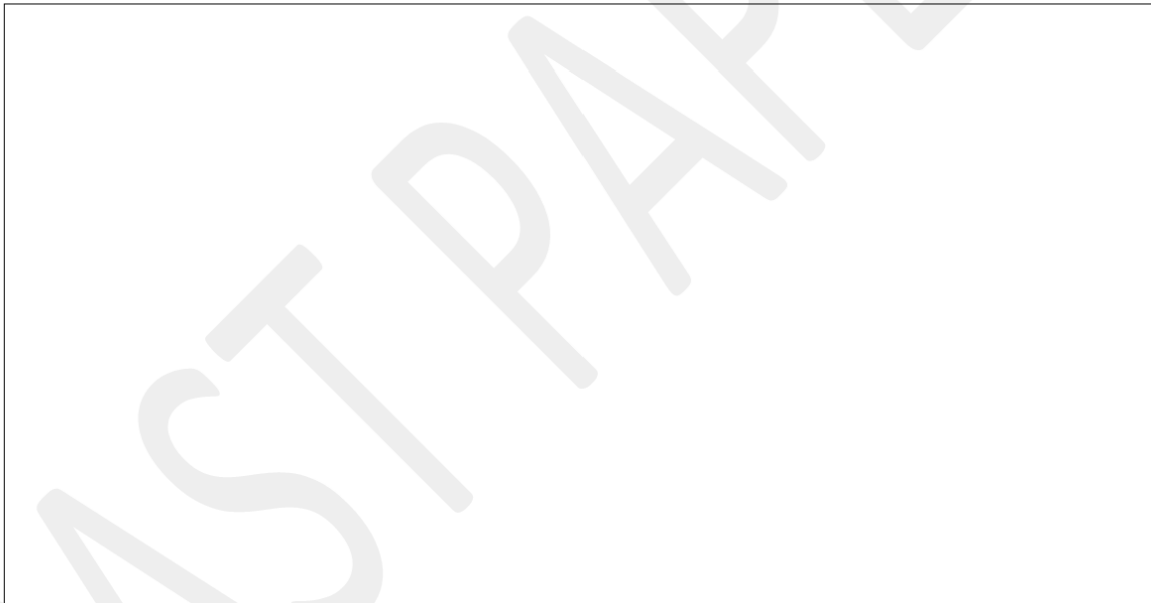
Kamrul wants a new kitchen tap with a flow rate of 4.7 litres per minute.

He thinks he can save more than 6000 litres of water in a year if he uses the new kitchen tap for 350 days a year for 20 minutes each day.

Is Kamrul correct?

Show how you decide.

[2 marks]



Your answer:

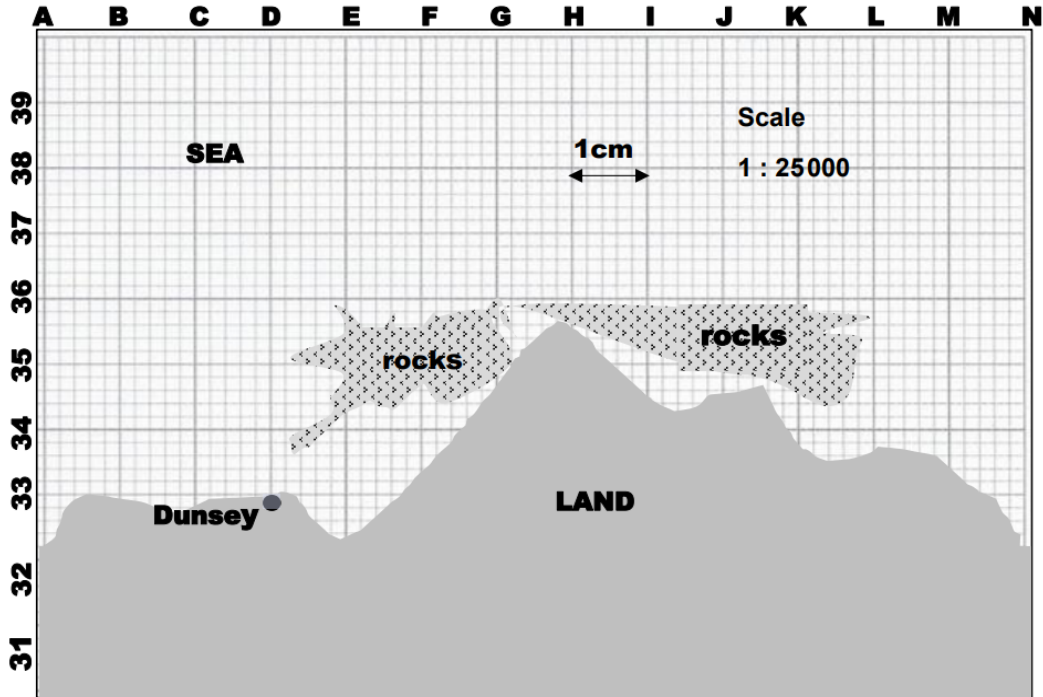
City & Guilds

5.

A fisherman sets off from Dunsey in a boat.

His boat will travel at an average speed of 5 kilometres per hour.

He has this map so that he can avoid the rocks.



He needs to meet up with a ship at coordinate L34 at 5pm

He needs to know at what time he must leave Dunsey.

At what time must he leave Dunsey?

Show all your working.

Time to leave Dunsey

(6 marks)

6.

An architect designs a shop refit.

The architect needs to work out the weight of an oak panel.

The oak panel measures 0.06 m x 0.9 m x 1.5 m

The density of oak is 700 kg per m³

What is the weight of the oak panel in kg?

Show your working

Weight of the oak panel _____ kg

(3 marks)

Highfield

7.

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

Calculate the speed, when the distance is 15.8 miles and time is 2.4 hours. Round your answer to 2 decimal places.

Show your working out and write the answer in the box below.

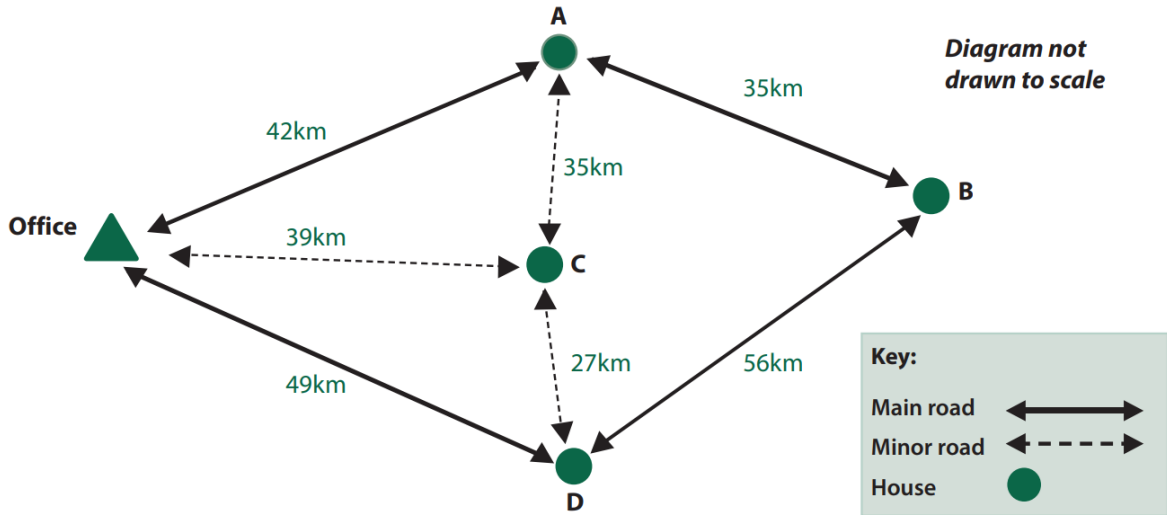
(2 marks)

Answer: _____ mph

8.

The manager has 4 houses to look at today; A, B, C and D.

This is a sketch showing the manager's office, the houses and the distance between them.



Speed = distance ÷ time

The manager will leave his office at 10 am and travel to each house once only and then return to his office.

He will spend 20 minutes at each house.

His average speed on the main roads is 70 kilometres per hour.

His average speed on the minor roads is 40 kilometres per hour.

He can visit the houses in any order.

What time will the manager be back at his office?

Show your working out and write the answer in the box below.

(6 marks)

Answer: _____

Open Awards

9.

Amy wants to catch the 10.12am train from Darlington to Chesterfield.

She needs to allow 10 mins to buy a ticket and get to the platform.

She lives 2 miles from the station and knows that she can walk at 3mph.

At what time should she leave home?

(2 marks)

Show your calculations and/or workings out in the space below:

Write your answer in this box.

AQA

10.

Steph supports Leicester City Football Club.

She and three friends are going to watch the team play at West Ham United.

The table shows information about the three parts of their journey.

| | |
|-----------------|---------------------------------|
| Drive 108 miles | Average speed 48 miles per hour |
| Train | Maximum 34 minutes |
| Walk to stadium | Maximum 25 minutes |

What is the latest time they can leave to be sure of getting to the stadium by 2.30 pm?

You **must** show your working.

[4 marks]

Answer _____

12.

A charity organises an annual sponsored swim.

Ahmed swam 50 lengths of a pool that is 25 metres long.

The swim took him 38 minutes.

Ahmed says,

“My average speed was more than 0.7 metres per **second**.”

Is Ahmed correct?

You **must** show your working.

[4 marks]
