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Mathematics

Level 1



10–14 January 2011

Time: 1 hour 30 minutes

Paper Reference

FSM01/01

You must have:

Pen, calculator, HB pencil, eraser, ruler graduated in cm and mm, protractor, compasses.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
– *there may be more space than you need.*
- **Calculators may be used.**

Information

- The total mark for this paper is 48.
- The marks for **each** question are shown in brackets
– *use this as a guide as to how much time to spend on each question.*
- **Where you see this sign you must show clearly how you get your answers because marks will be awarded for your working out.**



Advice

- Read each question carefully before you start to answer it.
- Show all stages in the calculations.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ►

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SECTION A: Being self-employed

Answer all questions in this section.

Write your answers in the spaces provided.

- 1 Phil is a self-employed joiner and window fitter.

The table shows Phil's monthly earnings last year.

| Month | Earnings |
|-----------|----------|
| January | £1300 |
| February | £800 |
| March | £2400 |
| April | £2200 |
| May | £2650 |
| June | £2850 |
| July | £3000 |
| August | £3150 |
| September | £2500 |
| October | £2150 |
| November | £1600 |
| December | £1650 |

Phil is self-employed.

He does not earn money when he is on holiday.

(a) In which month do you think Phil should go on holiday next year?

Use the information in the table to explain your answer.

(2)

Use the box below to show your answer.



Phil works out his earnings for each quarter last year.

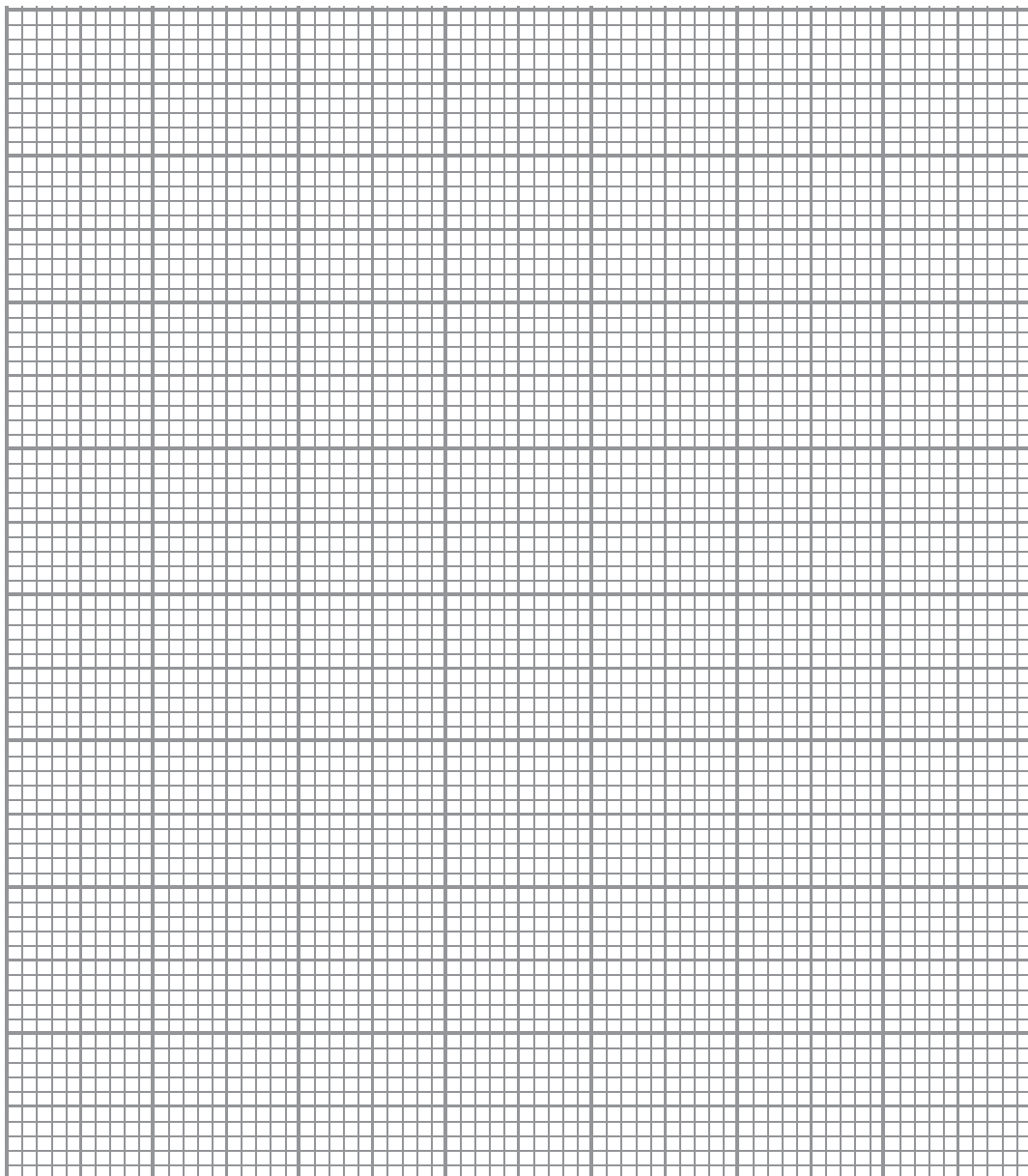
This table shows the information.

| Quarter | Earnings |
|---------|----------|
| spring | £4500 |
| summer | £7700 |
| autumn | £8650 |
| winter | £5400 |

He wants to show his earnings each quarter as a graph or chart.

(b) Draw a graph or chart for Phil.

(3)



(Total for Question 1 is 5 marks)



2 Phil's total earnings were:

£28 314 three years ago

£27 204 two years ago

£26 250 last year

Phil estimates his earnings per month.

He works out how much he earns per month each year.

He says,

"My earnings went down by more than £70 per month each year."

Do you think Phil's statement is correct?

(4)

Use the box below to show your calculations.



A large empty rectangular box for writing calculations.





A large, empty rectangular box with rounded corners, intended for writing an answer.

(Total for Question 2 is 4 marks)



3 Garcia wants to put a shed in his garden.

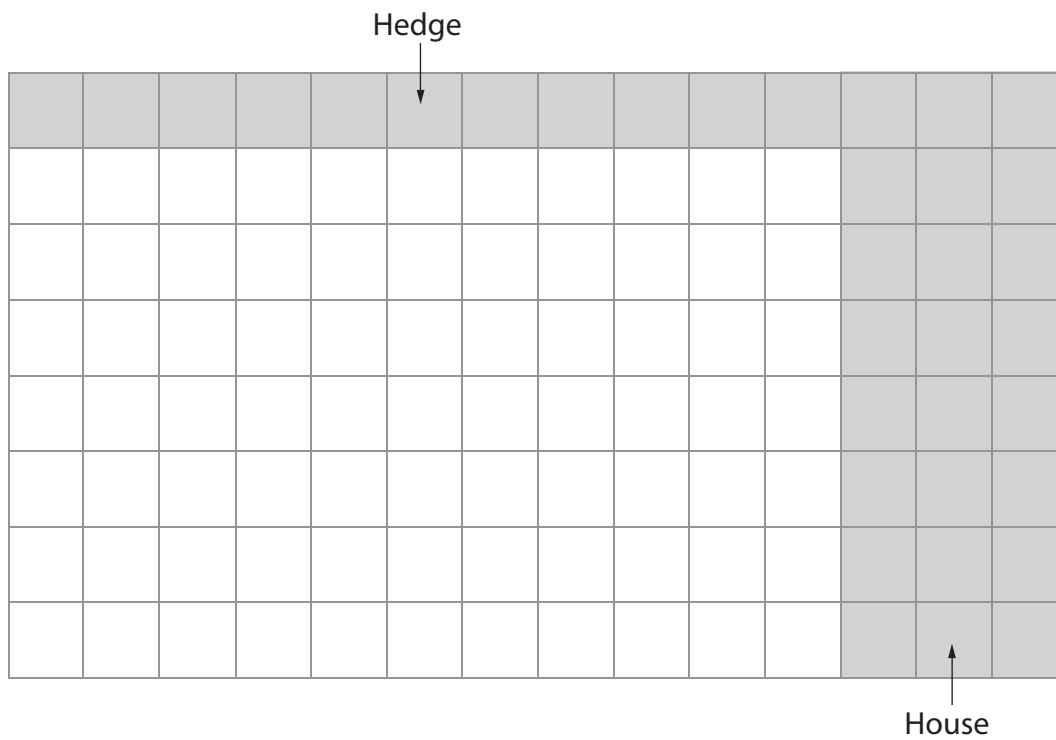
The base of the shed is a rectangle.
The rectangle is 3 m long and 2 m wide.

Garcia wants the shed to be at least 5 m from the house.
Garcia wants the shed to be at least 2 m from the hedge.

He has a plan of the garden.

(a) Show the shed on Garcia's plan.

(2)



Key: 1 cm on the plan = 1 m in the garden



Garcia hires Phil to do some jobs at his house.
The table shows the time Phil expects to take to do each job.
It also shows the order Phil will do the jobs in.

| Job | Time |
|----------------------------|-----------------------|
| Fit 2 small windows | 45 minutes per window |
| Tea break | 30 minutes |
| Fit a medium window | 1 hour 15 minutes |
| Fit a large window | 1 hour 45 minutes |
| Lunch break | 45 minutes |
| Put up the shed | 4 hours |

Phil starts the first job at 9am.

(b) Write a job plan for Phil's day.

Your plan should include the time he starts and finishes each job. (5)

Use the box below to show your plan.

(Total for Question 3 is 7 marks)



SECTION B: The wedding

Answer all questions in this section.

Write your answers in the spaces provided.

- 4 Chris and Kerry are planning their wedding. They want to find out what each of their guests would like to eat. The menu below shows the meal choices.

| Starter | Main meal | Dessert |
|----------------|------------------|----------------|
| soup | chicken | ice cream |
| fruit salad | braised lamb | fudge cake |
| prawn cocktail | salmon | cheesecake |

Chris and Kerry want to record the meal choices of each of their guests.

Design a data collection sheet to record the meal choices of each guest.

(3)



Use the box below to show the data collection sheet.

A large empty rectangular box with rounded corners, intended for drawing a data collection sheet.

(Total for Question 4 is 3 marks)



- 5 There will be 200 people at the wedding including Chris and Kerry.
In the room for the wedding there will be:

one large rectangular table for 10 people
circular tables for up to 8 people per table

They will use the large rectangular table.

(a) How many circular tables will they need?

(3)

Use the box below to show your calculations.



A large empty rectangular box for showing calculations.



Chris hires a suit to wear at the wedding.

The suit costs £160 to hire.

Chris gets a 10% discount.

(b) How much discount does Chris get?

(2)

Use the box below to show your calculations.

(Total for Question 5 is 5 marks)



6 Chris and Kerry will have their wedding at a hotel.

They have information from three hotels about the cost.

| | Derby Hotel | Aspen Hotel | Station Hotel |
|------------------|--------------------|--------------------|----------------------|
| Room hire | £2000 | Free | £1000 |
| DJ | Free | £300 | £200 |
| Meals | £10 per person | £15 per person | £12 per person |

There will be 200 people at the wedding including Chris and Kerry.

Chris and Kerry have a budget of £3500

(a) Which hotel should Chris and Kerry choose?

(5)

Use the box below to show your calculations.



Chris and Kerry are going to Italy for their honeymoon.

The total cost of the honeymoon is £4320

Chris and Kerry have already paid a £400 deposit.

They will pay the rest of the money by making 16 equal monthly payments.

(b) How much will they pay each month?

(3)

Use the box below to show your calculations.



(Total for Question 6 is 8 marks)



SECTION C: The bike ride

Answer all questions in this section.

Write your answers in the spaces provided.

7 Sanjay organises a charity bike ride called the 'ManScot' bike ride.

The bike ride has three stages.

Stage 1 Manchester to Leeds

Stage 2 Leeds to Carlisle

Stage 3 Carlisle to Edinburgh

The distances, in km, between the cities are shown in the table.

| | | | |
|-------------------|--------------|-----------------|------------------|
| Manchester | | | |
| 64 | Leeds | | |
| 160 | 148 | Carlisle | |
| 279 | 260 | 119 | Edinburgh |

(a) Calculate the total distance of the bike ride.

(3)

Use the box below to show your calculations.



Anne does the 'ManScot' bike ride.

First, Anne needs to buy the following items.

| Item | Cost | Quantity |
|----------------|--------|----------|
| Water bottle | £7.50 | 2 |
| Cycling shoes | £65.00 | 1 |
| Cycling vest | £24.50 | 2 |
| Cycling shorts | £17.50 | 1 |
| Sunglasses | £35.00 | 1 |

Anne has a budget of £200

(b) How much money will Anne have left from her budget?

(3)

Use the box below to show your calculations.



(Total for Question 7 is 6 marks)



- 8 Sally takes part in a different charity bike ride from Nottingham to Liverpool. It is called the 'NottPool' bike ride.

The total distance of the bike ride is 134 kilometres.

The bike ride has 8 equal stages.

Sally injures her leg during the bike ride and has to stop. She completes 72 000 metres of the bike ride.

Sally is sponsored by two different companies.

Cycles'R'Us

£255 per stage
completed

Health Food Shop

£15 per kilometre
completed

Which company will give Sally the most sponsor money?

(6)

Use the box below to show your calculations.





A large, empty rectangular box with rounded corners, intended for writing an answer.

(Total for Question 8 is 6 marks)



9 This headline was in a newspaper last year.

Charity Bike Rides

NottPool raises £2 for every £1 raised by ManScot.

Sanjay knows that ManScot raised £150 000 last year.

The total raised last year by the two bike rides was £450 000

(a) Was the newspaper headline correct?

(3)

Use the box below to explain your answer.



A large, empty rectangular box with rounded corners, intended for the student to write their explanation.



This year NottPool raised £200 000 and ManScot raised £50 000

(b) What do you think this year's newspaper headline will say?

(1)

Use the box below to show your answer.

Charity Bike Rides

(Total for Question 9 is 4 marks)

(TOTAL FOR PAPER IS 48 MARKS)



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