

Write your name here

Surname

Other names

Edexcel
Functional Skills

Centre Number

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Candidate Number

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Mathematics

Level 2



22–26 July 2013

Time: 1 hour 30 minutes

Paper Reference

FSM02/01

You must have:

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

Total Marks

--

My signature confirms that I will not discuss the content of the test with anyone until the end of the 5 day test window.

Signature: _____

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.
- Sign the declaration.
- 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.**
- **Check your working and your answers at each stage.**



Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.

Turn over ►

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PEARSON

SECTION A: Trains

Answer all questions in this section.

Write your answers in the spaces provided.

- 1 Nadia works for the local newspaper in Coaster.
She has to write a report about how people use trains at Coaster station.

Nadia wants to collect information at Coaster station from

- men and women
- people who are under 30 and people who are 30 or over.

She wants to know how often they use the train
every day, once a week, once a month or less often.

Nadia wants to put all the information she collects on a single data collection sheet
on one piece of paper.

(a) Design a data collection sheet for Nadia.

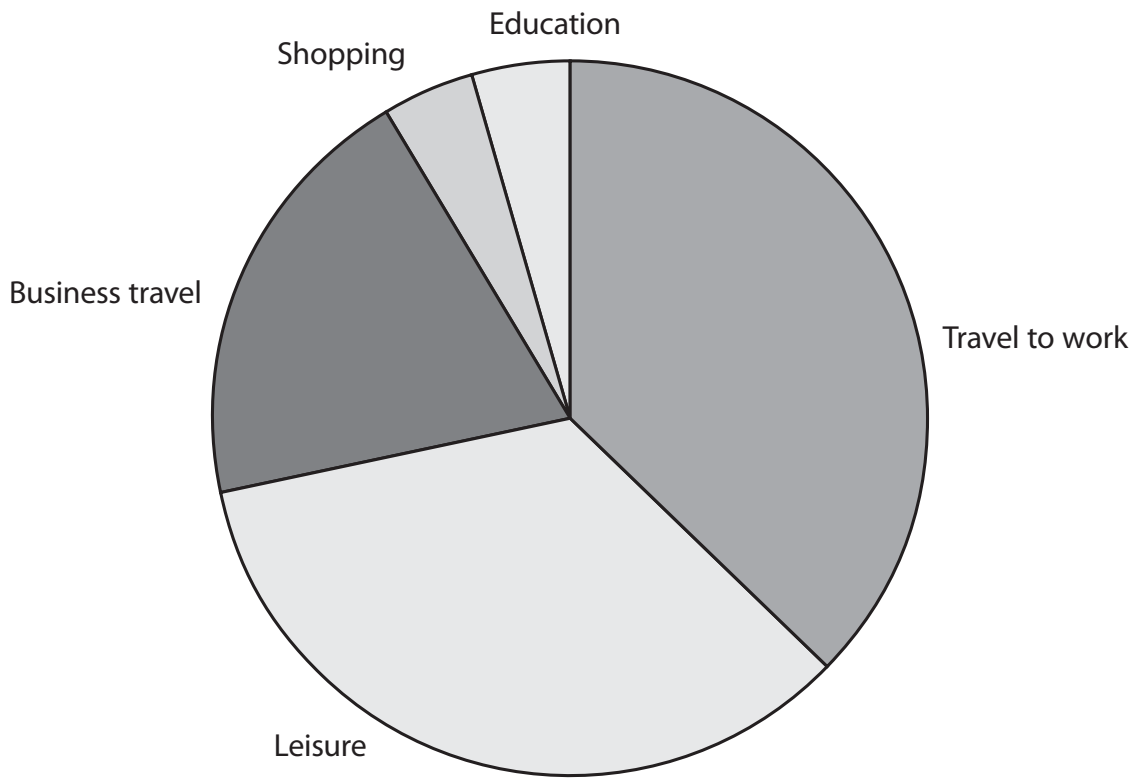
(3)



Use the box below to show your data collection sheet.



The pie chart shows the results of a survey about why people travel by train.



Nadia says

'The pie chart shows that more people use the train for leisure than for anything else.'

(b) Is Nadia correct?
Show why you think this. (2)

Use the box below to show clearly how you get your answer.

(Total for Question 1 is 5 marks)



- 2 The table shows information about the percentage of trains that arrived early or on time at Coaster station.

	Sept	Oct	Nov	Dec
2011	89	87	86	89
2012	91	85	84	91

Nadia wants to summarise this information in her report.

- (a) Use the mean and range to compare the figures for 2011 with the figures for 2012.

(5)

Use the box below to show clearly your calculations and your comparisons.



Here is the information about the percentage of trains that arrived early or on time at Coaster station.

	Sept	Oct	Nov	Dec
2011	89	87	86	89
2012	91	85	84	91

Nadia thinks that in October 2012 the probability of a train arriving late was $\frac{1}{10}$

(b) Is Nadia correct?
Show why you think this.

(3)

Use the box below to show clearly how you get your answer.

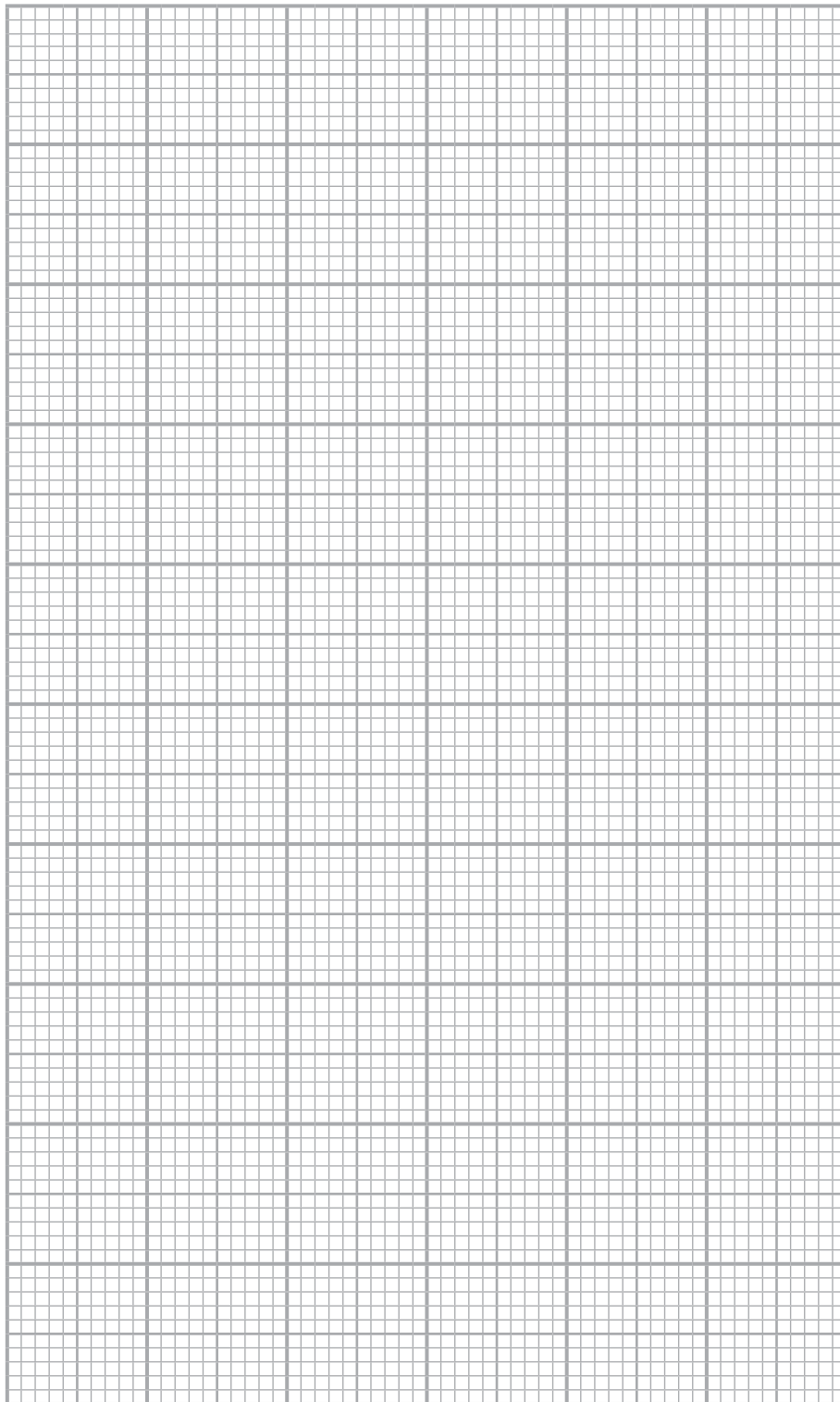


Nadia wants to include a display of the information in her report.

(c) Draw a suitable graph or chart for Nadia.

(3)





(Total for Question 2 is 11 marks)



SECTION B: A new bedroom

Answer all questions in this section.

Write your answers in the spaces provided.

- 3** Jesse is going to decorate his bedroom.
The bedroom floor is a rectangle 3.5 m by 2.74 m.

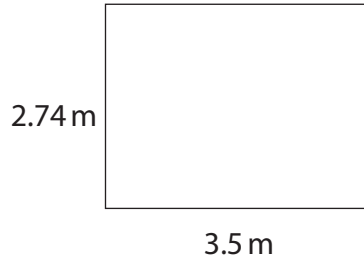


Diagram **NOT**
accurately drawn

He wants to lay flooring in the bedroom.

Jesse buys 3 packs of flooring.
Each pack contains enough flooring for 2.5 m².

(a) Has Jesse bought enough flooring?

(3)

Use the box below to show clearly how you get your answer.



A large empty rectangular box for writing the answer and showing the calculation.



Jesse is going to paint a feature wall in his bedroom.
He finds this formula to calculate the number of litres of paint he needs.

Paint Coverage Formula

$$N = \frac{C(A - D)}{10}$$

N = number of litres of paint needed

C = number of coats of paint

A = area of the wall (m^2)

D = area of the door (m^2)

Jesse decides to use 2 coats of paint.

The area of the wall is 8.19 m^2 .

The area of the door is 1.43 m^2 .

(b) How many litres of paint does Jesse need?

(3)

Use the box below to show clearly how you get your answer.



Jesse wants to put coving round the tops of some of the bedroom walls.

Here are the dimensions of the bedroom.

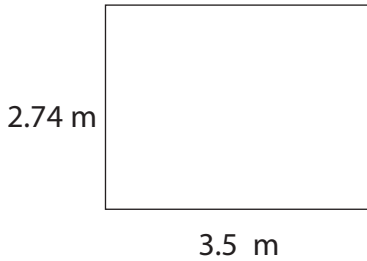


Diagram **NOT** accurately drawn

coving



He is going to put coving on the two long walls and one of the short walls.

Jesse finds two types of coving he likes.
The coving is sold in strips of different length.

Type of coving	Length of one strip
Classic	2 m
Trad	2.6 m

Jesse will buy either Classic or Trad coving.
He wants to waste as little of the coving as possible.

(c) Which type of coving should Jesse buy?
How much coving will he waste?

(4)

Use the box below to show clearly how you get your answer.



Blank area for showing the solution to the problem.



[Empty rectangular box for student response]

(Total for Question 3 is 10 marks)



4 Jesse wants a fitted wardrobe with sliding doors.

The doors have to fill a space 2740 mm wide.
All of the doors must have the same width.
The doors must overlap each other.



Jesse finds these prices for some sliding doors he likes.

Width of door (mm)	Cost per door
610	£95.00
762	£105.00
914	£115.00

He wants to spend as little as possible on the doors.

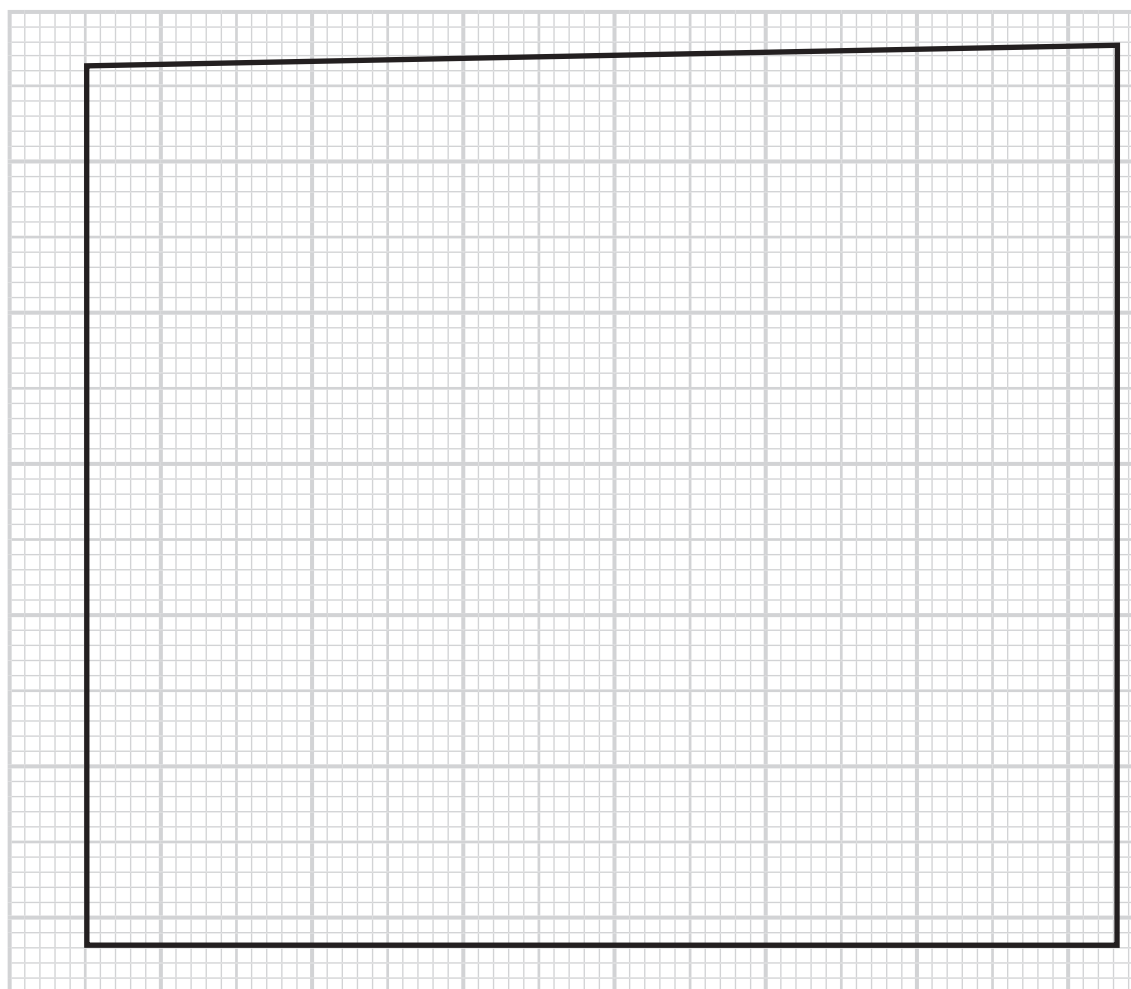
- (a) Find the number of doors Jesse needs to buy.
What is the total cost?

(4)

Use the box below to show clearly how you get your answer.



The diagram shows a scale drawing of the space for the wardrobe doors.
The space is not a rectangle.
The sliding doors are rectangular.
They must all be the same height.



Scale 1 : 20

(b) What is the greatest height Jesse can use for the sliding doors?

(2)

Use the box below to show clearly how you get your answer.



(Total for Question 4 is 6 marks)



SECTION C: The balloon flight experience

Answer all questions in this section.

Write your answers in the spaces provided.

- 5 Mike wants to take his wife for a balloon flight experience on their wedding anniversary.

He finds these special offers.

Fly High Balloons

£155 per person

Special offer
40% off

Anytime Balloons

£138 per person

Special offer
 $\frac{1}{3}$ off

Go Ballooning

Fly with a friend

£190
for two people

Choose the cheapest balloon flight experience for Mike and his wife.
What is the total cost?

(5)

Use the box below to show clearly how you get your answer.



A large empty rectangular box for writing the answer and showing the working.



A large empty rectangular box for writing answers.

(Total for Question 5 is 5 marks)



6 The balloon flight experience includes

- meeting the pilot for a briefing at the launch site (15 min)
- inflating the balloon (20 min)
- the flight (up to 1.5 hours)
- deflating the balloon and packing it away (40 min)
- presentation of certificates (10 min)
- minibus back to the launch site (30 min).

Mike and his wife are going to meet the pilot for the briefing at 17:00

Their journey home from the launch site takes 45 minutes.

They have booked a babysitter until 9 pm

Will they be home by 9 pm?

(3)

Use the box below to show clearly how you get your answer.



(Total for Question 6 is 3 marks)



- 7 The pilot must calculate the weight carried by the balloon.
The pilot does her calculations in pounds.

Mike knows he weighs 65 kg.
He thinks this is about 150 pounds.

Use $1\text{ kg} = 2.2\text{ pounds}$.

(a) Is Mike correct?

Show how you have checked your answer.

(3)

Use the box below to show clearly how you get your answer and to show your check.



A large, empty rectangular box intended for the student to show their calculations and check.



The pilot has begun to complete the weight sheet to find the total weight of the balloon.

(b) Complete the weight sheet for the pilot.

(2)

	Weight (pounds)	Number	Total Weight (pounds)
Balloon, basket and burners	440	1	440
Gas bottles	135	3	
Average weight per person	150	5	
Heated air			5922
Total			



The balloon flies at a height of 500 feet above the ground.

The balloon starts to descend slowly.

The vertical speed indicator shows -12 feet per minute.

Mike thinks at this rate it will take $\frac{3}{4}$ of an hour to reach the ground.

(c) Is Mike correct?

Show why you think this.

(3)

Use the box below to show clearly how you get your answer.



(Total for Question 7 is 8 marks)

TOTAL FOR PAPER IS 48 MARKS



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