

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



14–18 May 2012

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

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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.**



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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PEARSON

SECTION A: Jewellery

Answer all questions in this section.

Write your answers in the spaces provided

1 Holly makes jewellery to sell.

To make one pair of earrings she needs

- 2 large beads
- 8 small beads
- ear wires
- hoops.

Holly has plenty of ear wires and plenty of hoops.
She has 15 large beads and 50 small beads.

(a) How many pairs of earrings can Holly make?

(2)

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



Holly is going to make 20 necklaces.

It costs her

- £94.60 for the materials to make the 20 necklaces
- £6.25 per necklace for post and packing.

She wants to get a 40% profit when she sells the necklaces.

(b) How much should Holly charge for the necklaces?

(4)



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



A large, empty rectangular box with rounded corners, intended for students to show their work.



A customer asks Holly to make a jade pendant with a chain length of 23 inches.

Holly has these chains.

Chain length	40 cm	50 cm	60 cm	100 cm
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Holly will need to cut a chain to the right length.
She wants to waste as little as possible.

Use 1 inch = 2.54 cm

(c) Which of the chain lengths should Holly use? (2)

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



(Total for Question 1 is 8 marks)

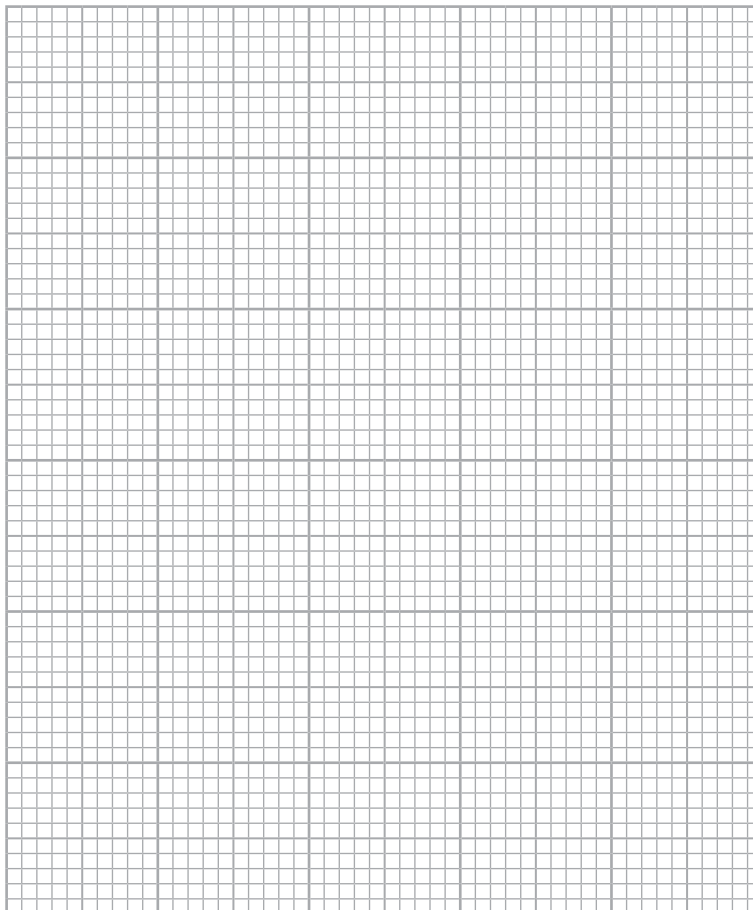


- 2 Holly sells jewellery on her website, in shops and at markets.
The table shows information about her sales last autumn and last winter.

	Autumn	Winter
Website sales	£2600	£3000
Shop sales	£1800	£1900
Market sales	£500	£400

Holly wants a graph or chart to display the information for a meeting with a business advisor.

Make a graph or chart for Holly. (3)



(Total for Question 2 is 3 marks)



3 Holly makes notes about what she needs to do on Wednesday.

- start at 8.30 am
- must be finished and home by 4 pm
- lunch break at least 45 minutes
- meet business advisor in Wick at 11.30 am (30 minute meeting)
- visit 2 shops in Bath (45 minutes in each shop)
- make jewellery at home (need $2\frac{1}{2}$ hours)

The diagram shows the travelling times between her home, Bath and Wick.

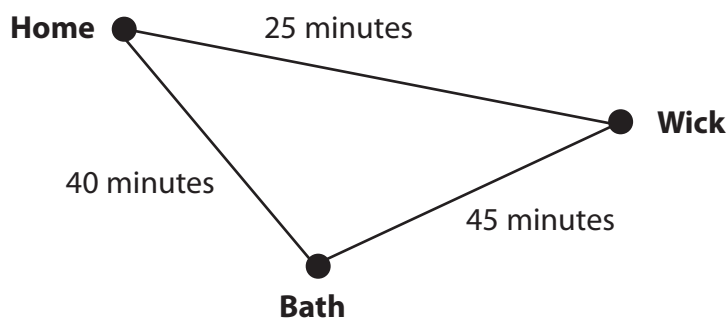


Diagram **NOT** accurately drawn

Holly needs a plan to fit in everything she has to do on Wednesday.

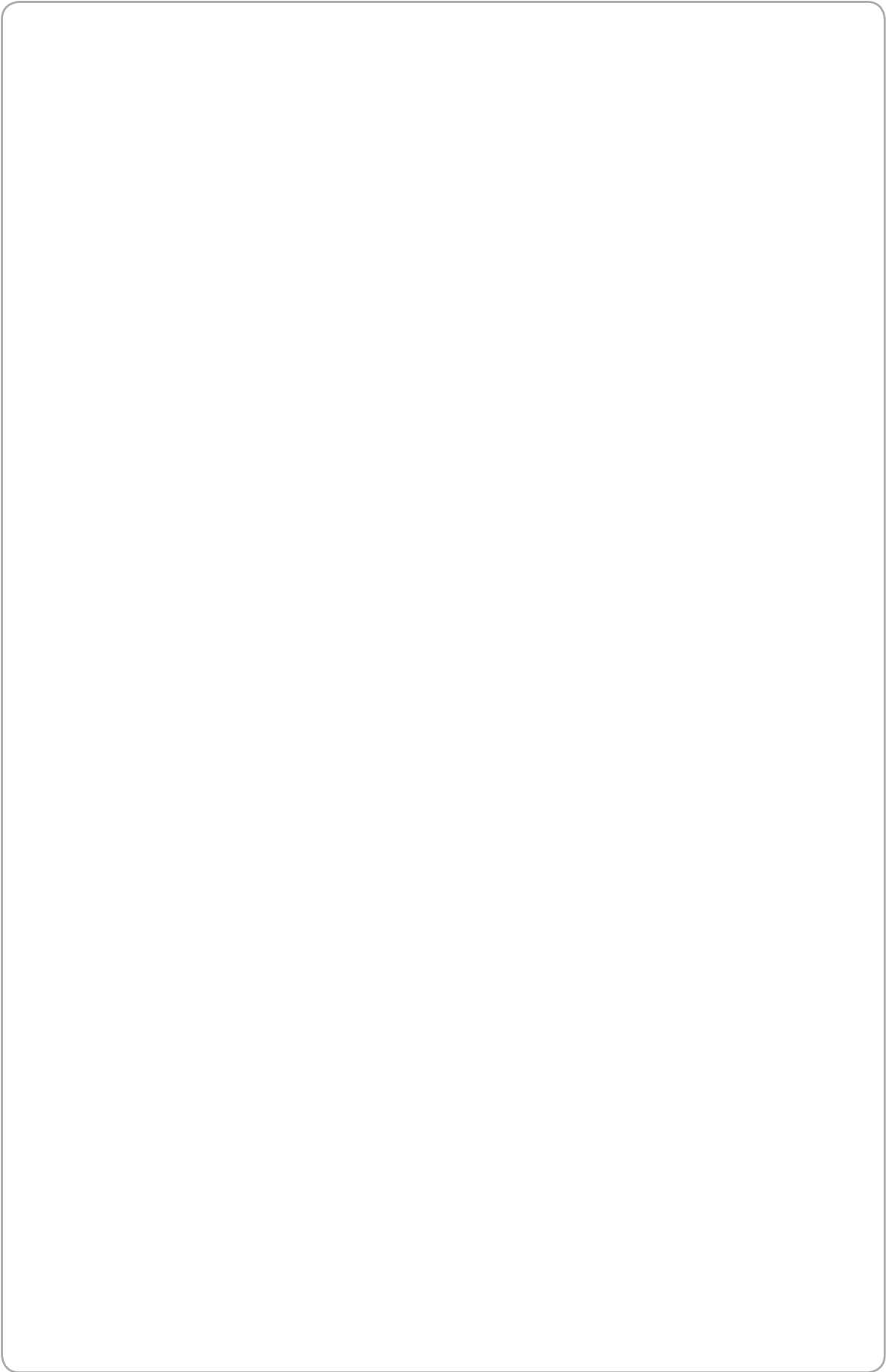
The plan must show when she expects to arrive at each place and leave each place, her lunch break and the time she will finish.

Make a time plan for Holly.

(5)



Use the box below to show your time plan.



(Total for Question 3 is 5 marks)



SECTION B: Activity centre

Answer all questions in this section.

Write your answers in the spaces provided

4 An activity centre offers these activities.

Activity	Land or water	Effort level	Cost (£)
Archery	land	low	38
Climbing wall	land	high	15
Karting	land	low	24
Human bowling	land	high	12
Shooting	land	low	27
Quad bike	land	low	90
Canoeing	water	high	30
Boating	water	low	45
Wakeboarding	water	high	50
Surfing	water	high	35

Craig is going to spend 3 days at the activity centre.
He wants to do 2 activities each day.
He wants to do 6 different activities in total.

Craig's activities will include

- at least 2 water sports in the 3 days
- no more than 1 high effort activity each day.

He has a budget of £180

Craig needs to plan his activities.
The plan must show the 6 activities, the effort levels and the total cost.

Make a plan for Craig.

(4)



Use the box below for your plan.



(Total for Question 4 is 4 marks)



- 5 The activity centre offers team days.
Teams try activities in the morning and compete in the afternoon.

A team captain must choose Tess or Erin to do the target shooting competition.

Tess says

'For the 4 practice shoots this morning my mean average score is 57'

Here are Erin's scores in the 4 practice shoots.

Score	53	61	57	52
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- (a) Who should the team captain choose?
Explain your answer.

(3)

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



Len and Bruno compete for their teams in the quad bike obstacle course.

These are the rules for the quad bike obstacle course.

Riders will

- start with 5 points each
- get 2 points for each second their time is less than 120 seconds
- lose 2 points for each second their time is more than 120 seconds
- lose 3 points for each obstacle they knock down.

The table shows the results for Len and Bruno.

Name	Time (seconds)	Number of obstacles knocked down
Len	121	2
Bruno	116	6

The best rider has the highest total number of points.

(b) Who was the best rider, Len or Bruno?
Show why you think this.

(3)

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



(Total for Question 5 is 6 marks)



6 Alisha owns the activity centre.

The table shows her profit in each three-month period for the last two years.

	Jan - Mar	Apr - Jun	Jul - Sep	Oct - Dec
2010	£3400	£5200	£6100	£5300
2011	£3900	£4800	£5700	£4600

Write a statement to compare her profit in 2010 with her profit in 2011

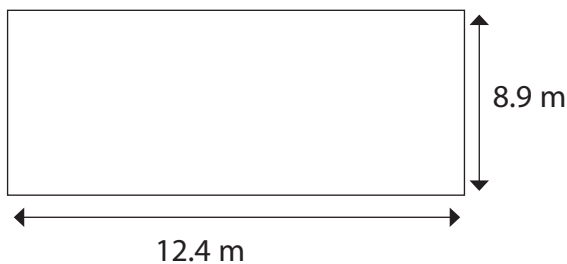
(1)

Write your statement in the box below.

(Total for Question 6 is 1 mark)

7 Alisha wants to put new floor tiles in the indoor games room of the activity centre.

The floor of the indoor games room is rectangular.
It is 12.4 m by 8.9 m.

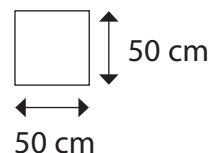


Diagrams **NOT** accurately drawn

Alisha chooses floor tiles that are 50 cm by 50 cm.

The floor tiles are sold in packs.
There are 20 tiles in each pack.

Alisha buys 23 packs of tiles.



Will Alisha have enough floor tiles?

(5)



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



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

(Total for Question 7 is 5 marks)



SECTION C: Breakfast food company

Answer all questions in this section.

Write your answers in the spaces provided.

- 8 Anton works for a breakfast food company.
He has to choose a sample pot for a new product.

The pot must

- be in the shape of a cylinder
- hold 100 ml of the product.

Anton knows this formula to work out the volume of a cylinder.

$$V = 0.785 \times d^2 \times h$$

V = volume of the cylinder (cm^3)
 d = diameter of the cylinder (cm)
 h = height of the cylinder (cm)

Anton chooses a pot with a

- diameter of 6 cm
- height of 3.5 cm

Use $1 \text{ cm}^3 = 1 \text{ ml}$

(a) Will this pot hold 100 ml of the product?

(3)

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



Zoe is the marketing manager.
She is going to do a survey to see if people like the new product.

Zoe wants to know if the product is liked or disliked by

- men
- women

in the age ranges

- under 30
- 30 to 50
- over 50

She needs a data collection sheet to record the information.

(b) Design a data collection sheet for Zoe.

(3)

Use the box below for your data collection sheet.

(Total for Question 8 is 6 marks)



9 Last year the breakfast food company spent

- £7 635 000 on wages
- £4 986 000 on other items.

The owner says the company must spend £3 million less next year.
He is going to

- reduce the money spent on wages by $\frac{1}{3}$
- reduce the money spent on other items by 15%

(a) Will these reductions save at least £3 million?
Show why you think this.

(4)

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



A large empty rectangular box for writing the answer.



(b) Show a check for part (a) in the box below. (1)

(Total for Question 9 is 5 marks)



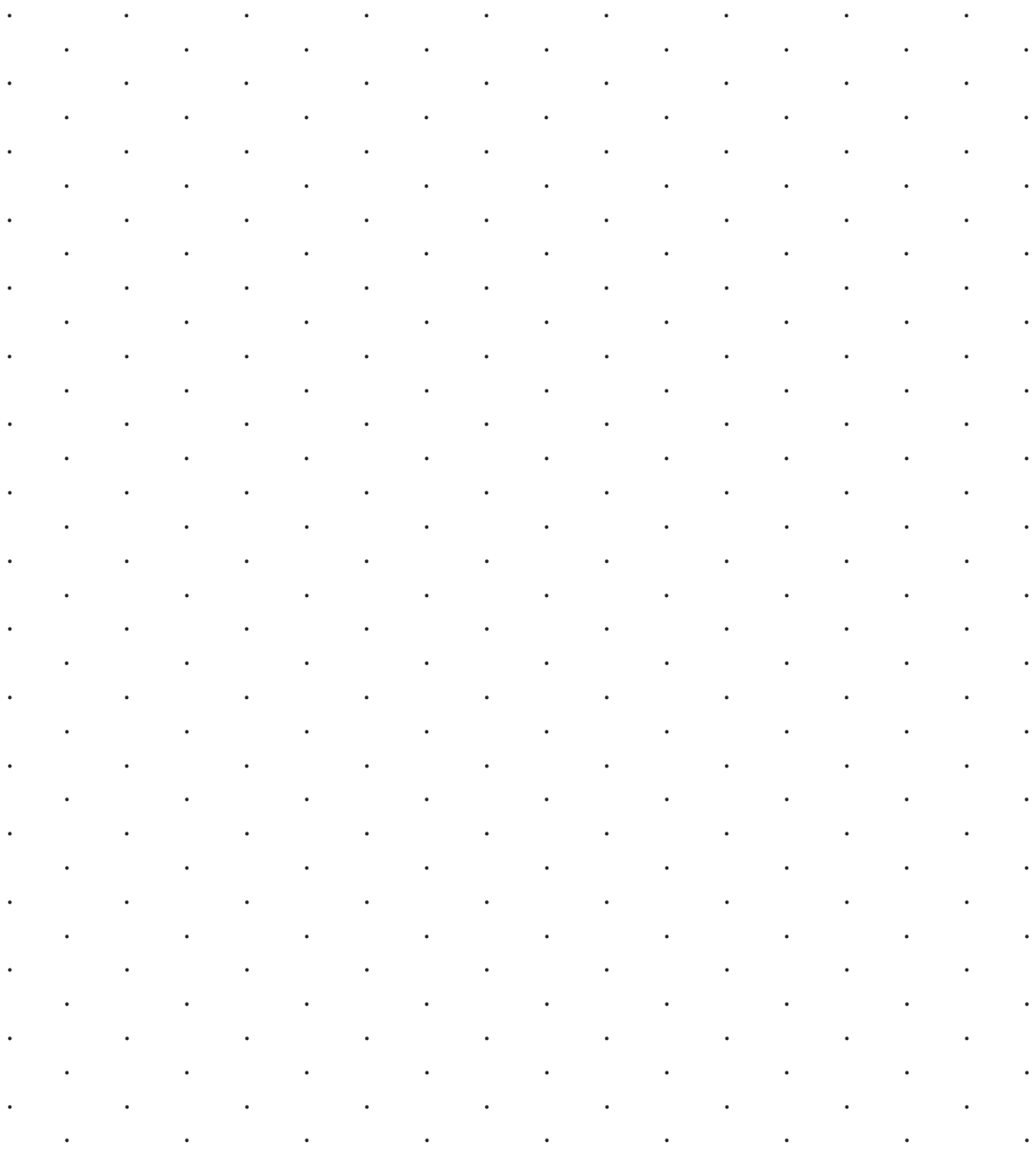
10 The company also makes cereal bars.
The cereal bars are sold in boxes.

Katya works in the advertising department.
She has to draw the box for a poster.

The box is in the shape of a cuboid.
The box on the poster will be 9 cm by 6 cm by 2 cm.

(a) Draw a 3D picture of the box. (2)

Use the isometric paper below for your 3D picture.



Fran and Paul need to advertise the cereal bars.

They find this information about advert costs on a website.

Billboard
Large advert
£7500 per month

National newspaper
Full page advert
£18 000 per day

Fran says

'Let's take a full page advert in the newspaper every day in June.'

Paul says

'We could get at least 70 billboard adverts in June for that amount of money.'

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

(3)

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



A large empty rectangular box for writing the answer.

(Total for Question 10 is 5 marks)

TOTAL FOR PAPER IS 48 MARKS



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