

Write your name here

Surname

Other names

**Pearson Edexcel  
Functional Skills**

Centre Number

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Candidate Number

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# Mathematics

## Level 2



18 – 22 July 2016

**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 a **black** 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.*
- **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.**
- **This sign shows where marks will be awarded for showing your check.**



### 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: Clothes shops**

**Answer all questions in this section.**

**Write your answers in the spaces provided.**

- 1 Vince is the regional manager for a group of clothes shops. He inspects his shops in July to compare sales performance.

Here are the total monthly sales for the first 6 months of the year for one shop.

Month	Jan	Feb	Mar	Apr	May	Jun
Total sales in thousands (£)	87.0	73.5	91.8	94.0	92.4	100.9

- (a) What is the mean total sales of this shop for the first 6 months?  
Show a check of your working.

(3)

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

Use the box below to show your check.



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The till staff take a postcode from each customer.

This table shows the number of customers from each local postcode.

Postcode	W13	W5	W7	W12
Number of customers	5800	2300	1700	3900

The marketing manager needs to know the probability that a customer comes from postcode W12.

(b) Work out the probability that a customer with a local postcode comes from postcode W12. (2)

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

(Total for Question 1 is 5 marks)



2 The shop's sales target for July is £139 000

The total sales for the shop is £89 850 with 4 working days left in July.

There are 3 employees working in the shop.

Vince tells the 3 employees

I would be happy if you each sell £2500 worth of items each day for the next 4 days. This will meet 85% of the target for July.

Is Vince correct?  
Show why you think this.

(5)

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



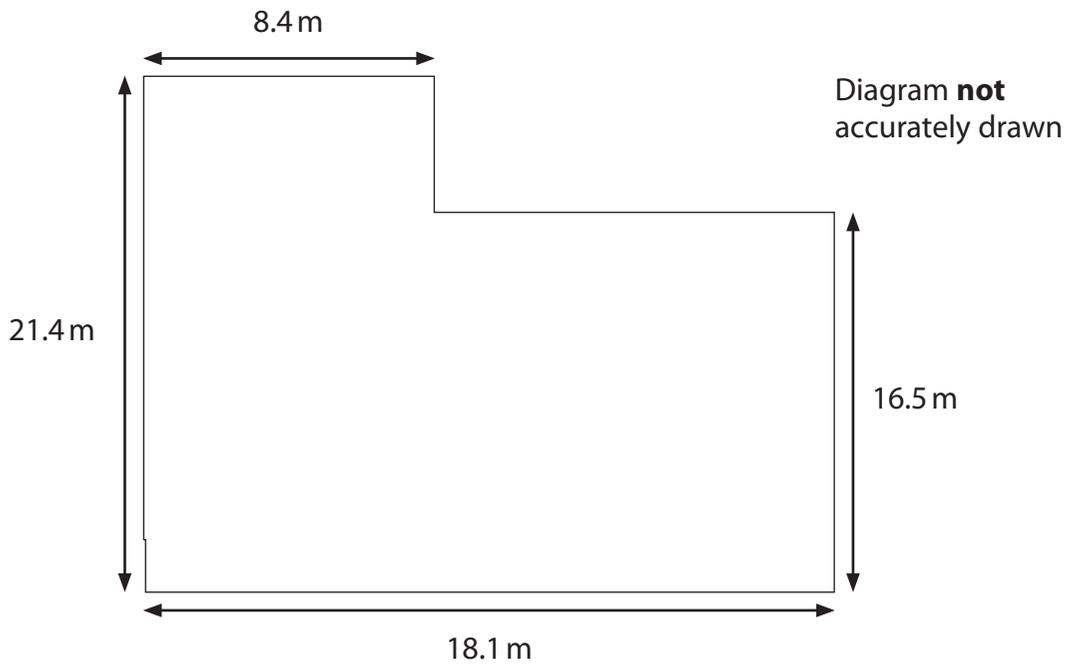
(Total for Question 2 is 5 marks)

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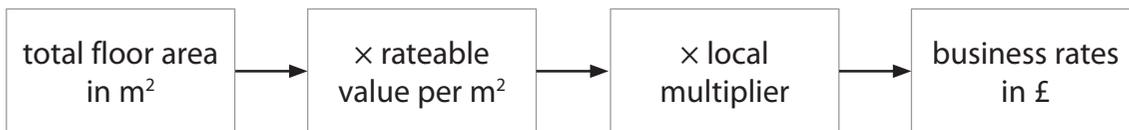
3 Vince is looking at a new shop in London.

This is the sketch of the shop floor.



He asks an accountant to calculate the business rates for this shop.

The accountant uses this rule.



The rateable value per m<sup>2</sup> for the shop is £131.35

The accountant finds these local multipliers online.

Shop location	Outside London	London	Wales
Local multiplier	0.48	0.484	0.482

What are the business rates for this shop in London?

(6)

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



(Total for Question 3 is 6 marks)

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**SECTION B: Birthday party**

**Answer all questions in this section.**

**Write your answers in the spaces provided.**

- 4 Kirsty is going to organise a birthday party for her daughter.

She makes these notes about two party options.

**Village hall**

Hire the hall for 3 hours at £30 per hour

Entertainer fee – £150

Lunch – £6.80 per child

Party bags – £2.29 for 6 bags

**Princess party**

Includes venue hire, entertainer  
and party bags

£299 (for up to 15 children)

Lunch – £4.49 per child

There will be a total of 12 children at the party.

Kirsty has a budget of £400 for the party.

Which option should Kirsty choose for the party?  
Give a reason for your answer with figures.

(6)

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



(Total for Question 4 is 6 marks)

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5 Kirsty wants to buy a princess outfit for her daughter to wear at the party.

She finds these items on the internet.

She needs to order a dress, a pair of shoes, a tiara and a wig.

Dress	£19.99
Pair of shoes	£8.99
Tiara	£6.99
Wig	£4.99
Delivery charge	£5.50
Free delivery for orders over £25	

Kirsty has a voucher that gives her  $\frac{1}{3}$  off the total price.

How much will Kirsty pay in total?  
Show a check of your working.

(4)

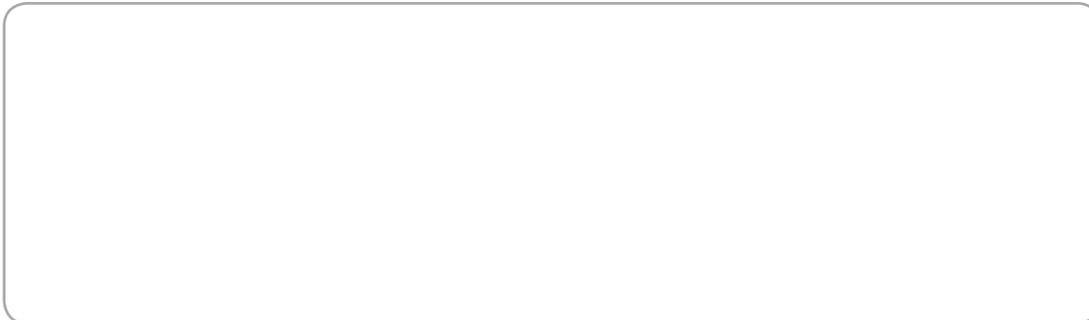
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Use the box below to show clearly how you get your answer.



Use the box below to show your check.



**(Total for Question 5 is 4 marks)**



6 Kirsty is going to make a birthday cake for the party.

It takes 25 minutes to prepare the cake mixture and 70 minutes to bake in the oven.

The cake needs 1.5 hours to cool before decorating.

Kirsty then needs three quarters of an hour to decorate the cake.

She wants to finish decorating the cake at least 2 hours before the party starts.

The party starts at 2.30 pm.

(a) What time should Kirsty start making the cake?  
Show why you think this.

(3)

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

DO NOT WRITE IN THIS AREA



Kirsty also makes cupcakes for the party.

She has this list of ingredients.

**Cupcakes**  
makes 12 cakes

125 g butter  
140 g caster sugar  
100 g flour  
25 g custard powder  
3 eggs

Kirsty wants to make 40 cupcakes.

She has 500g of caster sugar.

(b) Does Kirsty have enough caster sugar to make 40 cupcakes?  
Show why you think this.

(3)

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

(Total for Question 6 is 6 marks)



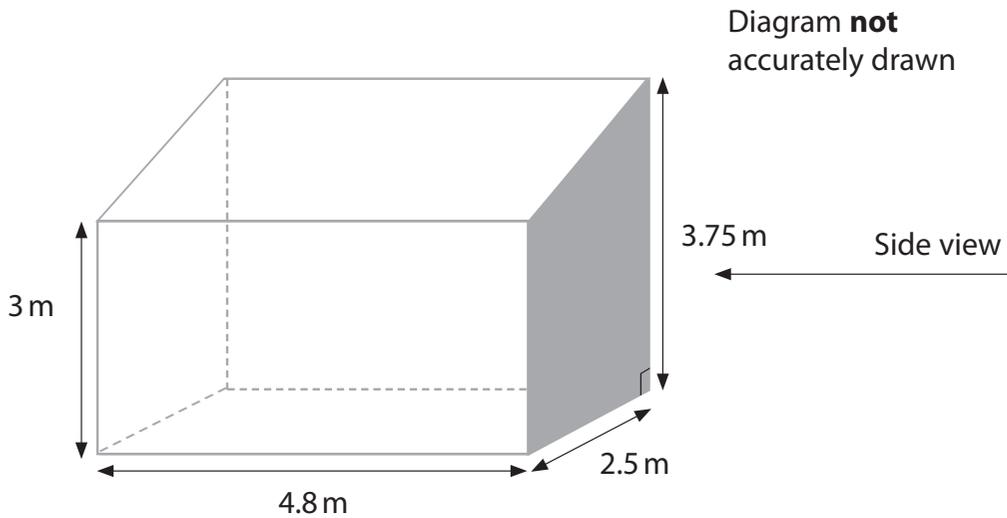
**SECTION C: Home improvements**

**Answer all questions in this section.**

**Write your answers in the spaces provided.**

- 7 Ahmed is going to make some home improvements. He wants to build a conservatory.

Ahmed has this sketch of the conservatory.

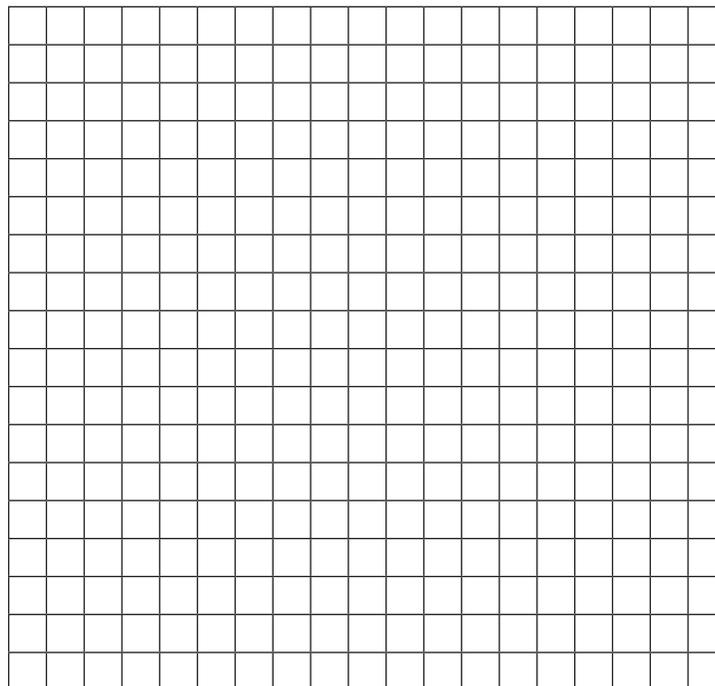


Ahmed needs a scale drawing of the side view of the conservatory. He uses a scale of 1:50

Draw the side view of the conservatory for Ahmed on the grid. Remember to use the scale.

(3)

Scale 1:50



(Total for Question 7 is 3 marks)

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8 Ahmed is going to get solar panels fitted to a section of the roof of his house.

The roof section is rectangular 6.7 m by 4.8 m.

Each solar panel is 1600 mm by 900 mm.

Solar panels need to be at least 30 cm away from each edge of the roof section.

Ahmed thinks he can have 12 solar panels fitted to the roof section.

Can 12 solar panels be fitted to the roof section?

Show why you think this.

(5)

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

(Total for Question 8 is 5 marks)



- 9 Ahmed needs an energy rating for his house.  
He needs to calculate the heat loss for his house.

Ahmed uses this formula.

$$H = U(E - W)$$

H = heat loss in watts  
E = total wall area in  $m^2$   
W = the total window area in  $m^2$   
U = a value in watts per  $m^2$

Ahmed knows the total wall area of his house is  $524.8m^2$  and the total window area is  $19.12m^2$ .

Ahmed uses this table to find the U value for the walls of his house.

Type of wall	U value
Unfilled cavity	4.6
Filled cavity	0.45
Solid 220 mm	2.1

The walls in Ahmed's house are filled cavity.

Ahmed calculates the heat loss of his house to be 240 watts.

Is Ahmed correct?  
Show why you think this.

(3)

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



**(Total for Question 9 is 3 marks)**

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10 Ahmed wants to buy a water saving shower head.

He finds this information.

Shower head	Flow rate (litres per minute)	Diameter (mm)	Warranty (years)	Price (£)
A	8	120	5	99.95
B	9	100	5	26.45
C	6	85	5	16.95
D	18	100	3	47.45
E	10	150	5	68.95

Ahmed wants a shower head with

- the flow rate less than 10 litres per minute
- the biggest possible diameter
- a price less than £50

(a) Which shower head should Ahmed buy?

(1)

Use the box below to write your answer.

Ahmed wants to investigate the cost of taking a shower using the new shower head.

He knows his current shower head has a flow rate of 14 litres per minute.

He also knows

- the shower is used on average for 25 minutes a day
- 1 litre of water costs £0.00297

Ahmed thinks the new shower head will save more than £130 a year.

(b) Is Ahmed correct?

Show why you think this.

Show a check of your answer.

(4)

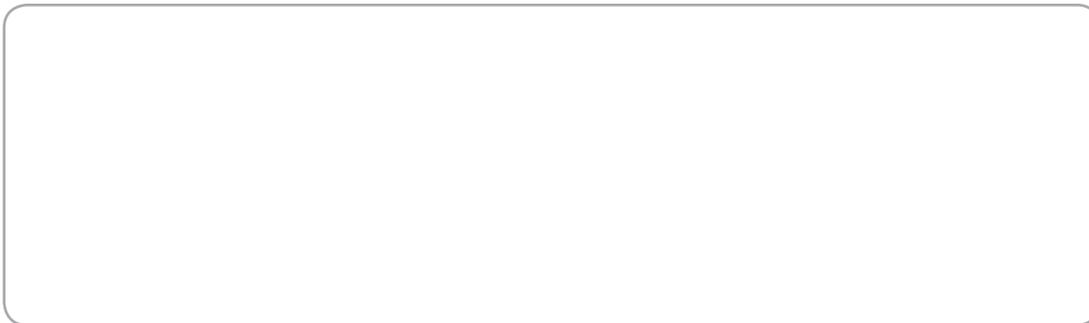
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Use the box below to show clearly how you get your answer.



Use the box below to show your check.



**(Total for Question 10 is 5 marks)**

**TOTAL FOR PAPER IS 48 MARKS**



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