

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**



12 – 16 June 2017

**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 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: Village festival**

**Answer all questions in this section.**

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

**1** Oli and Sanjay help organise a village festival.

On the morning of the festival a parade will travel through the village to the park.

The parade will start at 11.45 am.

It will travel

- a distance of 1.2 km
- at an average speed of 3 km/h.

Oli needs to work out the time the parade will arrive at the park.

(a) At what time will the parade arrive at the park?

(4)

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

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(b) Give an example of something that could affect the arrival time at the park.

(1)

Use the box below to write your comment.

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The plan shows where the visitors to the festival can walk.

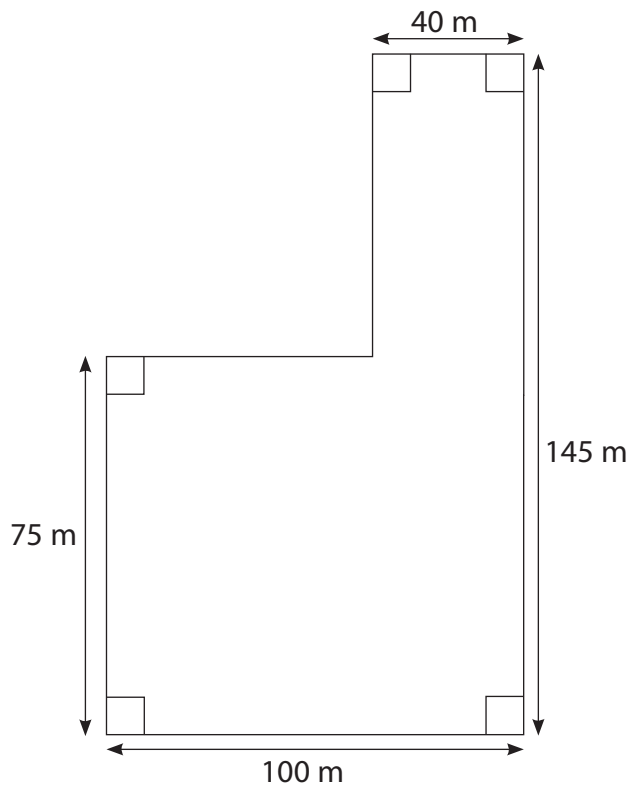


Diagram **not**  
accurately drawn

Sanjay expects 10 000 visitors at the festival.

For health and safety, there must be fewer than 0.9 visitors per square metre.

(c) If 10 000 visitors are at the festival will there be fewer than 0.9 visitors per square metre?

(5)

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There is a special offer for adults who buy tickets before the day of the festival.

**Village festival**

Adult ticket £8.50 on the day

Buy early pay  $\frac{3}{5}$  of this price

(d) How much is an adult ticket if you buy early?

(2)

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

(Total for Question 1 is 12 marks)

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2 Sami is going to sell baked potatoes at the festival.

She finds these offers for potatoes.

**Home Farm**

Sacks of potatoes

25 kg for £7.80

buy 2 sacks get a third sack  
free

**Country Veg**

Potatoes

25 kg sack

normal price £6.40

**Special Offer**

18% off normal price

Sami needs to buy 75 kg of potatoes.  
She wants to pay the least amount.

What is the least amount Sami can pay for 75 kg of potatoes?

(4)

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

(Total for Question 2 is 4 marks)



**SECTION B: History trip**

**Answer all questions in this section.**

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

- 3 Karl is a history tutor in a college.  
He is organising an educational visit for his students.

Karl finds this information.

Venue	Cost per student	
	Half day session	Full day session
Civil Justice Centre	£8.50	
Crown Court	£8.50	
Police Museum and Crown Court		£10
History Museum and Crown Court		£10.50
<b>Tutors free entry with students</b>		

**Coach hire**

£350 per day

Karl wants to book a full day session at the History Museum and Crown Court.  
He will hire a coach for the day.

The college has a budget of £500 for educational visits.

Karl will get  $\frac{1}{8}$  of the budget to help pay for the total cost of the full day session and the coach hire.

37 students will go on the visit.

Karl thinks each student should pay £17 to cover the remaining total cost.

- (a) Is Karl correct?  
Show why you think this.

(6)

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

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Karl needs to work out a time plan for the visit.  
He wants the students to tour each of the museum and the court for at least one hour.

These are his notes.

- Meet at college 25 mins before the coach leaves
- Coach to museum – allow 40 mins
- Arrive at museum – 10 am
- Tour museum
- Lunch between 12 pm and 2 pm –  $\frac{3}{4}$  hour
- Walk to court straight after lunch – allow 15 mins
- Tour court
- Coach to college – allow 50 mins
- Arrive at college – 4 pm

(b) Complete a time plan for Karl.

(4)

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Use the box below to show your time plan.



(Total for Question 3 is 10 marks)



- 4 Kirsty works at the museum.  
She is writing a report about visitor numbers.

Kirsty has this information for the last 6 months of 2016.

Month	Jul	Aug	Sep	Oct	Nov	Dec
Number of students	3097	600	1138	1594	1545	1338

She thinks the mean number of students to visit the museum each month in this time is close to 1500

- (a) Is Kirsty correct?  
Show a check of your working.

(3)

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

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Use the box below to show your check.



In 2016 the total number of students who visited the museum was 19 160

In July 2016 the total number of students who visited the museum was 3097

- (b) What percentage of the total number of students who visited the museum in 2016 visited in July?  
Give your answer to one decimal place.

(3)

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

(Total for Question 4 is 6 marks)



**SECTION C: The artist**

**Answer all questions in this section.**

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

- 5 Leo is an artist.  
He needs to produce a painting for the opening of a new housing estate.  
Leo is going to construct a symmetrical canvas for his painting.  
He makes a sketch of the frame for the canvas.

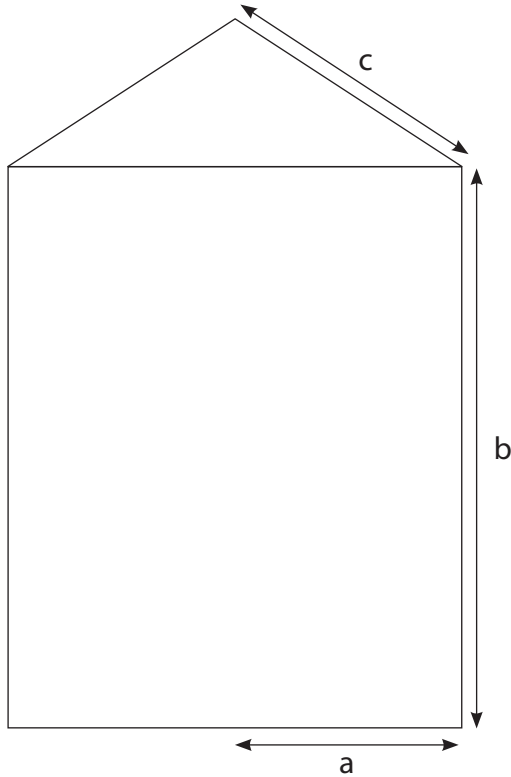


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Leo uses this formula to work out the total length,  $L$  mm, of the wood he needs for the frame.

$$L = 2(b + c) + 4a$$

$$a = 420 \text{ mm}$$

$$b = 1130 \text{ mm}$$

$$c = 580 \text{ mm}$$

He has a 4.8 m length of wood for the frame.

Is 4.8 m enough wood for the frame?  
Show why you think this.

(4)

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

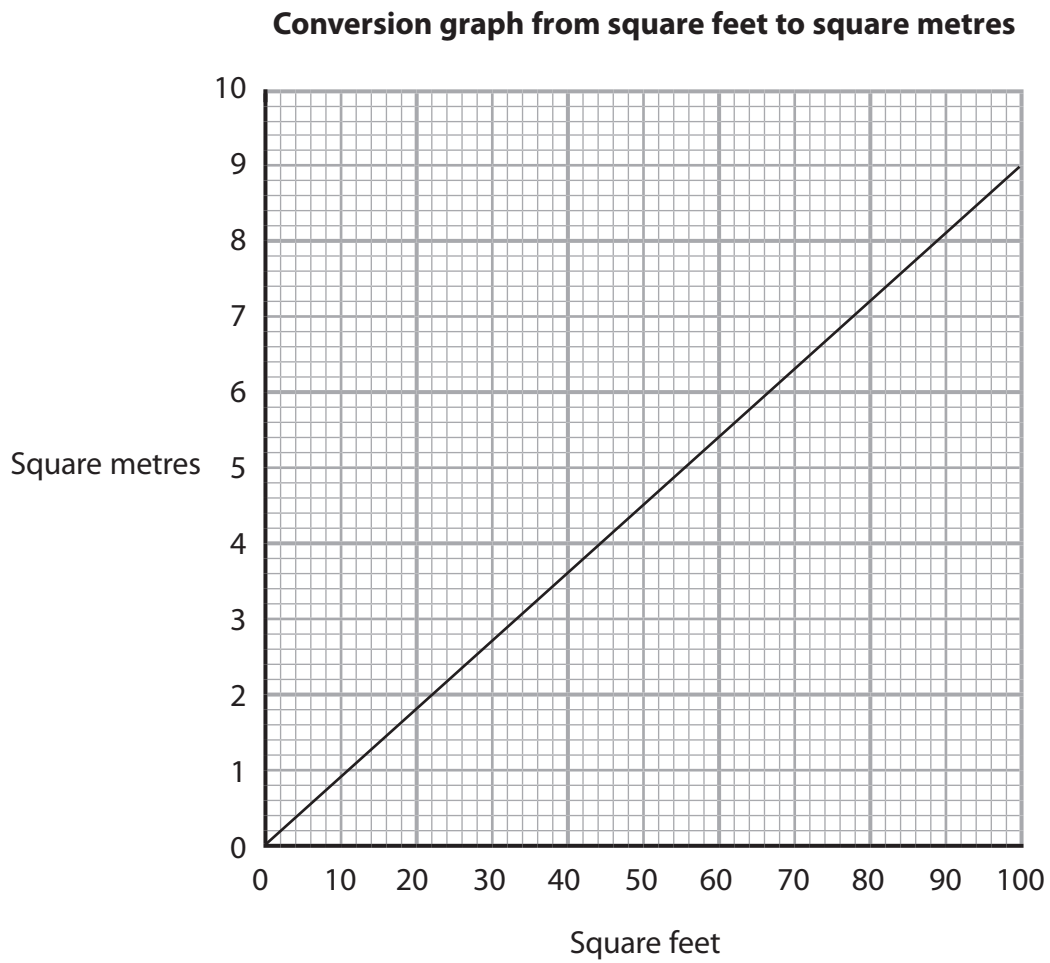


(Total for Question 5 is 4 marks)



- 6 Leo is also going to paint a mural on a wall in the housing estate.  
The area of wall for the mural is 82 square feet.

Leo needs to know the area in square metres to work out how much paint he needs.  
He finds this conversion graph to convert between square feet and square metres.



(a) Use the graph to convert 82 square feet to square metres.

(2)

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





Leo wants to paint the wall brown.

He needs to mix red paint, blue paint and yellow paint in the ratio 4 : 3 : 1 to make brown paint.

Leo needs a total of 1.6 litres of brown paint.

- (b) What quantity of red paint, blue paint and yellow paint does he need?  
Show a check of your working. (4)

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

Use the box below to show your check.



(Total for Question 6 is 6 marks)



7 Leo will put some of his paintings in an art exhibition.

He will put three paintings on a rectangular wall 6.8 m wide and 4.8 m high. Each painting is rectangular 1.2 m wide and 1 m high.

Leo wants to put the paintings at different heights.

He wants the horizontal distance between each painting to be the same and at least 40 cm.

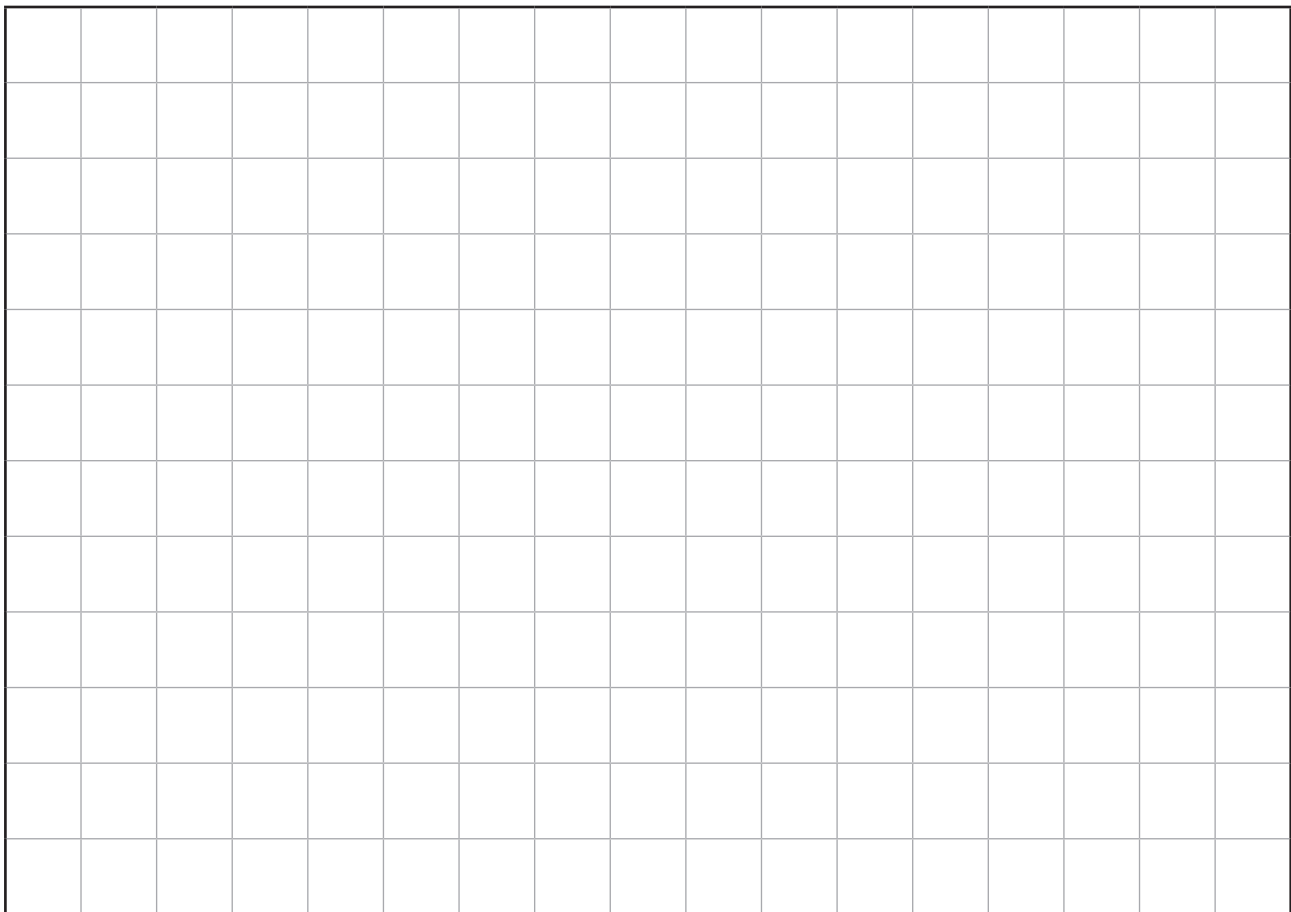
Leo wants to put the paintings so that the distance between

- the bottom of each painting and the floor is at least 1.4 m
- the top of each painting and the top of the wall is at least 1.2 m.

He draws a plan of the wall.

(a) Draw the positions of the paintings on the wall plan.

(4)



Scale 1:40

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A painting costs £490

Su, an American tourist, wants to buy a painting.  
She does not want to pay more than \$600

Su knows that £1 = \$1.23

(b) Is the cost of the painting less than \$600?

(2)

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

**(Total for Question 7 is 6 marks)**

**TOTAL FOR PAPER IS 48 MARKS**



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