

Write your name here

Surname

Other names

Edexcel
Functional Skills

Centre Number

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Mathematics

Level 2



23–27 July 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

| |
|--|
| |
|--|

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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6/4/3



PEARSON

SECTION A: Recycling

Answer all questions in this section.

Write your answers in the spaces provided.

1 Jo works for the council.

The council collects rubbish for recycling.
They collect the rubbish in 4 different bins.

Jo makes schedules to tell people which bins to put out.

The council collects

- Food bins weekly
- Paper bins fortnightly
- General waste bins every 3 weeks
- Bottle bins every 4 weeks

- no more than 3 bins on the same day.

Jo's schedule must show people when their different bins will be collected.

The council collects bins in Dale Street on Fridays.

Design a schedule for Dale Street for July and August.
Make sure you check that your schedule is correct.

(4)

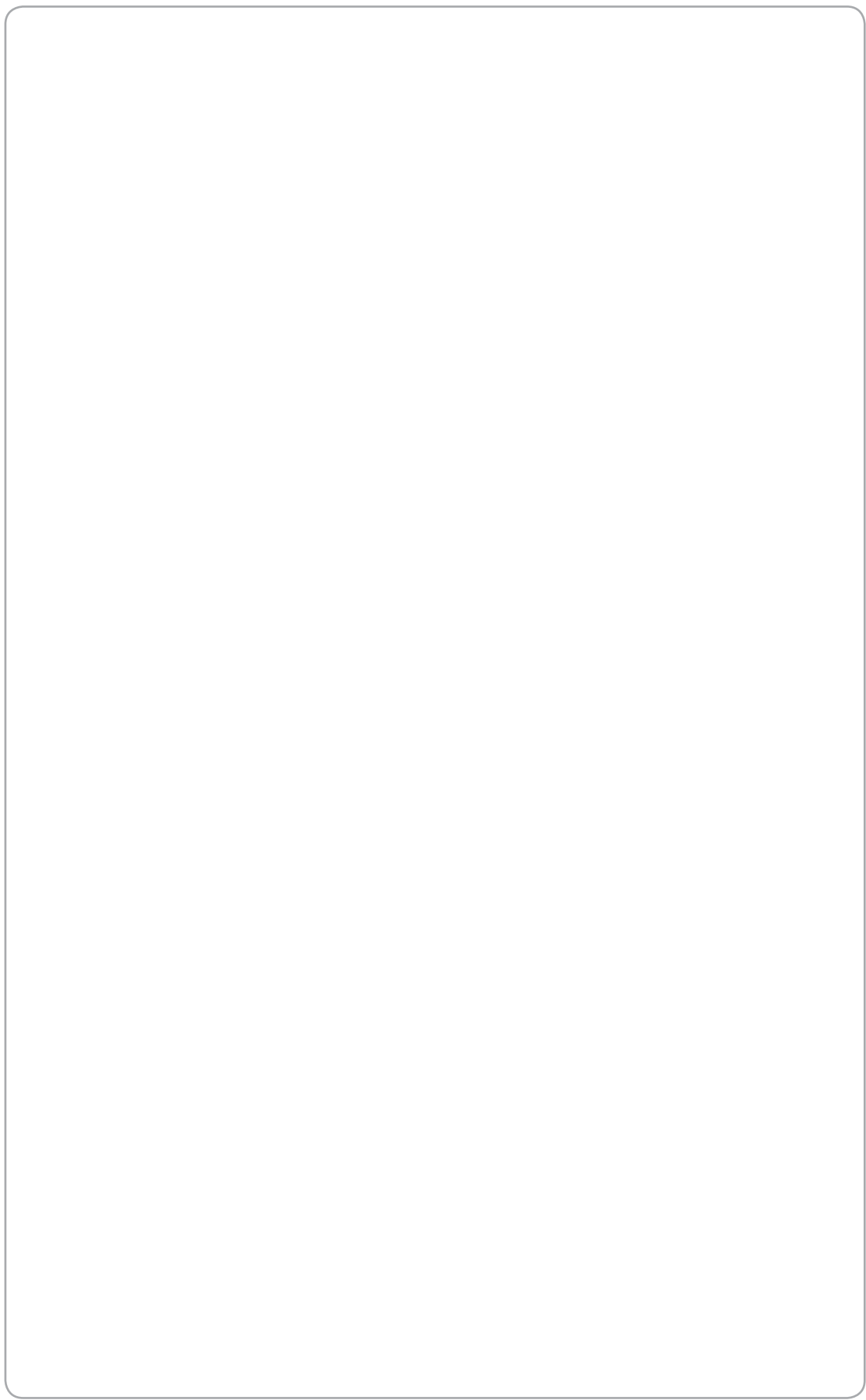
You may use the calendar below to help you.

| July | | | | | | |
|------|-----|-----|-----|-----|-----|-----|
| Sat | Sun | Mon | Tue | Wed | Thu | Fri |
| | 1 | 2 | 3 | 4 | 5 | 6 |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 |
| 28 | 29 | 30 | 31 | | | |

| August | | | | | | |
|--------|-----|-----|-----|-----|-----|-----|
| Sat | Sun | Mon | Tue | Wed | Thu | Fri |
| | | | | 1 | 2 | 3 |
| 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 25 | 26 | 27 | 28 | 29 | 30 | 31 |



Use the box below to show your schedule.



(Total for Question 1 is 4 marks)



2 Mike works for a newspaper in the North West region of England.

The newspaper wants an article about recycling.

Mike finds this table showing the percentages of household waste recycled in England.

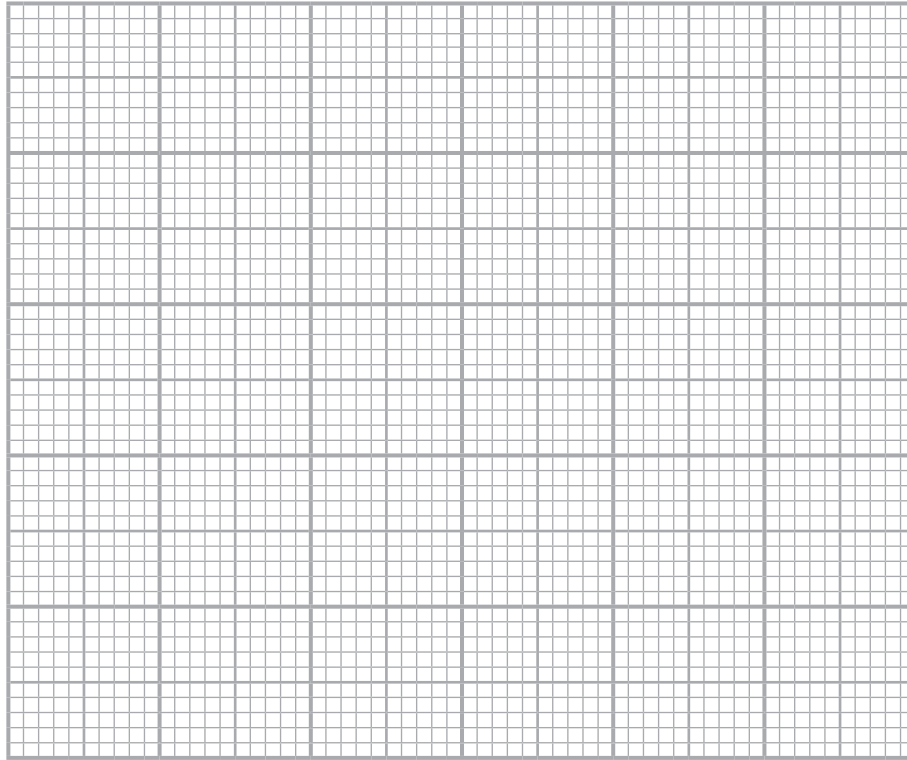
| Region | 2007 (%) | 2008 (%) | 2009 (%) | 2010 (%) |
|------------------------|----------|----------|----------|----------|
| North East | 26.4 | 28.4 | 31.1 | 34.7 |
| North West | 28.9 | 33.4 | 36.6 | 38.5 |
| Yorkshire & Humberside | 26.9 | 30.5 | 33.8 | 36.8 |
| East Midlands | 35.6 | 41.9 | 44.5 | 45.6 |
| West Midlands | 28.6 | 33.0 | 36.6 | 40.0 |
| Eastern | 38.3 | 41.2 | 44.5 | 46.1 |
| London | 22.9 | 25.5 | 29.2 | 31.8 |
| South East | 33.1 | 36.0 | 38.4 | 40.0 |
| South West | 37.2 | 40.3 | 42.3 | 43.5 |
| England | 30.9 | 34.5 | 37.6 | 39.7 |

Mike decides to draw a graph to compare the rate of recycling in the **North West** with the rate of recycling in **England**.

(a) Draw a graph or chart for Mike to use in the article.

(3)





(b) Write two statements to compare recycling in the **North West** with recycling in **England** for Mike to use in his article.

(2)

Write your statements in the box below.

(Total for Question 2 is 5 marks)

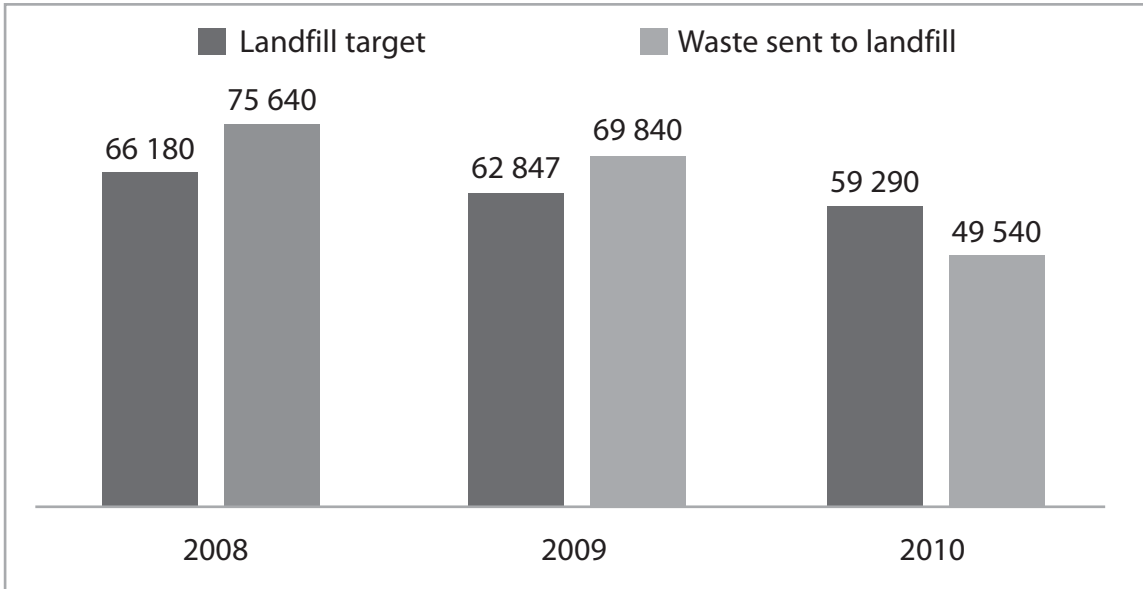


3 Mike knows that his local council sends some waste to landfill.

He finds out that the government sets a yearly target for the maximum amount of waste each council should send to landfill.

The chart shows, in tonnes

- the landfill target for Mike's local council
- the amount of waste the council sent to landfill.



Each year, if the council sends more waste to landfill than the target, it must pay a fine.

Here is the formula to work out the fine.

$$F = 150(W - T)$$

F is the fine (£)

W is the waste sent to landfill (tonnes)

T is the landfill target (tonnes)

Mike thinks that the council had to pay more than £2 million in fines for the years 2008 - 2010

(a) Is Mike correct?

Show why you think this.

(4)

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



Mike finds out that in 2010, the UK

- produced a total of 2 712 860 tonnes of glass
- recycled 1 647 917 tonnes of glass.

The UK target for glass recycling in 2010 was 60% of the total produced.

(b) Did the UK meet its target?
Show why you think this.

(3)

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



(Total for Question 3 is 7 marks)



SECTION B: Cub camp

Answer all questions in this section.

Write your answers in the spaces provided.

- 4 Omel is a leader of a cub pack.
She is organising a camping trip for the cubs.

There will be 4 leaders and 25 cubs on the camping trip.

Omel finds these prices for hiring tents for the camping trip.

| | | | | | |
|---------------------------------|----|----|----|----|----|
| Number of people in tent | 3 | 5 | 6 | 8 | 9 |
| Cost (£) | 25 | 37 | 42 | 48 | 52 |

Leaders do not share tents with cubs.

The 2 female leaders will not share a tent with the 2 male leaders.

(a) Work out the cheapest total cost of the tents.

(4)

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



(b) Show how you have checked that you found the cheapest total cost for the tents. (2)

Use the box below to show your answer.



(Total for Question 4 is 6 marks)



5 Omel needs to buy food for 4 leaders and 25 cubs on the camping trip.

At breakfast there is going to be a choice of food.

Omel knows that each morning about $\frac{2}{3}$ of campers choose cereal for breakfast.

A large packet of cereal contains 26 servings and costs £2.53

Find the total cost of buying enough packets of cereal for breakfast for 5 days.
Show a check of your working. (6)

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



A large empty rectangular box for showing the student's working.



[Empty rectangular box for student response]

(Total for Question 5 is 6 marks)



6 The cubs are going to arrive at the camp at 11:15 am

Here is a list of the activities for the first day.

- Pitching tents 1 hour 30 minutes
- Swimming 1 hour 20 minutes
- Lunch 45 minutes
- Evening meal 45 minutes
- Arts and crafts 2 hours
- Tying knots 1 hour 15 minutes

They must not go swimming for 1 hour after eating a meal.

Before they go to bed they will have story time around the campfire.

They go to bed at 8:00 pm

Omel needs a time plan for the first day.

The time plan must show the activities and story time with their start times and finish times.

Make a time plan for the day.

(4)



Write your time plan in the box below.

(Total for Question 6 is 4 marks)



SECTION C: The roofer

Answer all questions in this section.

Write your answers in the spaces provided.

7 Andy works as a roofer.

Farida has a large garage with a flat roof.

She asks Andy how much he will charge to make a new flat roof.

Andy makes a sketch of the roof showing the lengths of the sides.

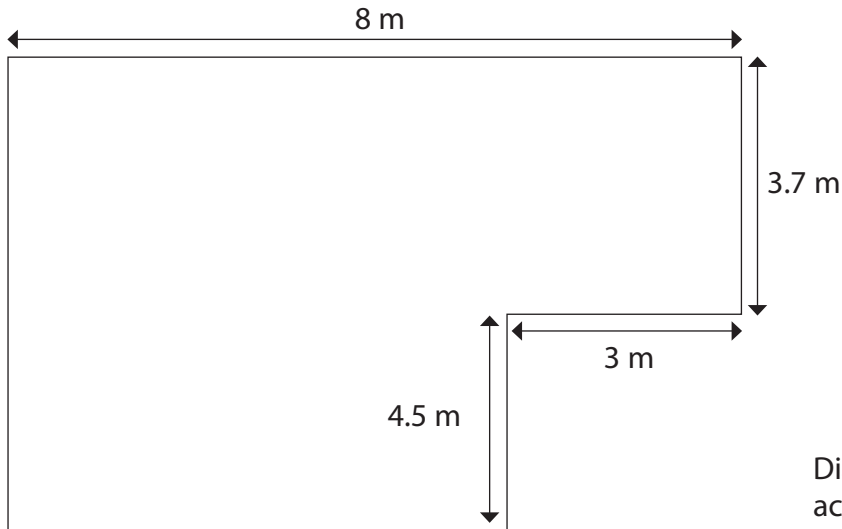


Diagram **NOT**
accurately drawn

Andy charges £46 per square metre of flat roof.

Farida has a budget of £2000 for the garage roof.

Can Farida afford Andy's charges?

(6)



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



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

(Total for Question 7 is 6 marks)



8 For a large roof Andy is repairing he needs

- 9 rolls of roofing felt
- 12 plywood boards.

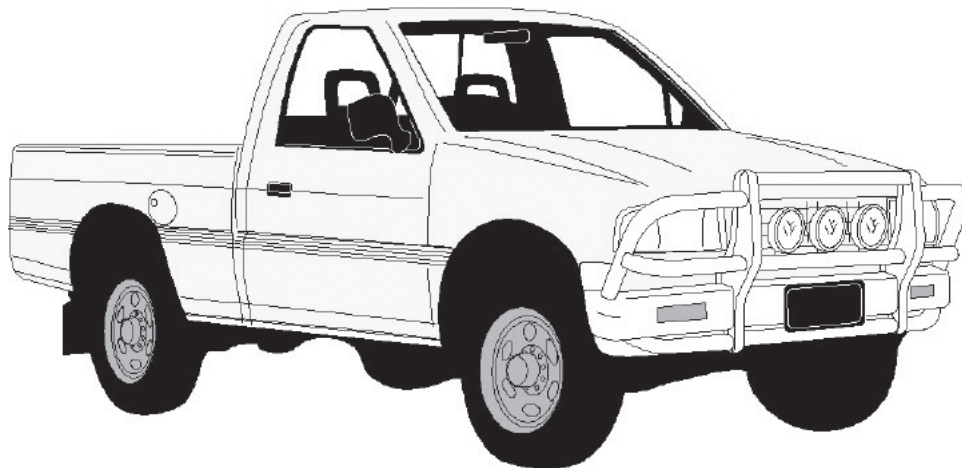
Each roll of roofing felt weighs 35 kg.
A plywood board weighs 40 kg.

Andy's truck can carry a load of up to $\frac{3}{4}$ tonne.

He knows that 1 tonne equals 1000 kg.

Can Andy's truck carry this weight of materials in one load?

(4)



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



(Total for Question 8 is 4 marks)



9 Andy works out the cost of beams to build another roof.

The gap between beams must not be more than 16 inches.
Andy needs to know this distance in cm.

Use 1 inch = 2.54 cm

(a) Convert 16 inches into cm for Andy.

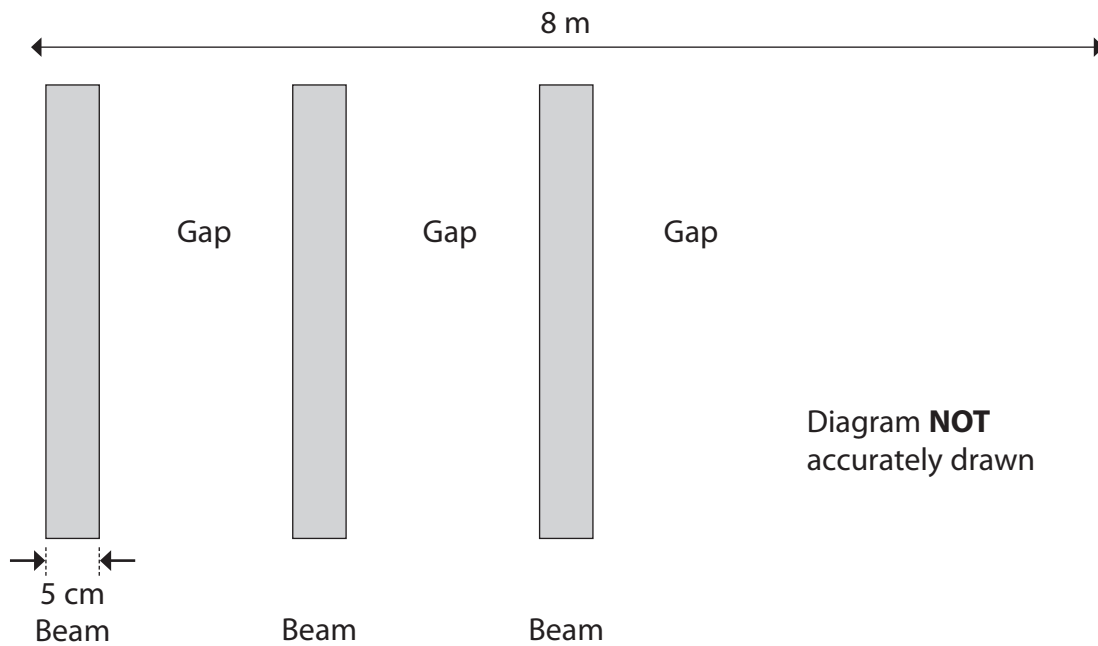
(2)

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



Andy thinks the beams will cost less than £300.
Each beam costs £14.28

Andy draws this rough sketch to help him work out how many beams he needs.



Each beam is 5 cm wide.

The gap between beams must not be more than 16 inches.

(b) Is Andy right that the beams will cost less than £300?
Explain why you think this.

(4)



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 9 is 6 marks)

TOTAL FOR PAPER IS 48 MARKS



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