

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**



3–7 February 2014

**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: Student assignment**

**Answer all questions in this section.**

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

- 1 George has to do an assignment on local crime figures.

He has this information about the number of crimes in his local area.

	<b>Jan to Mar</b>	<b>Apr to Jun</b>	<b>Jul to Sep</b>	<b>Oct to Dec</b>
<b>2012</b>	583	668	562	498
<b>2013</b>	514	563	494	505

George wants to display all this information in his assignment.

- (a) On the graph paper on page 3, draw a graph or chart for George.

(3)

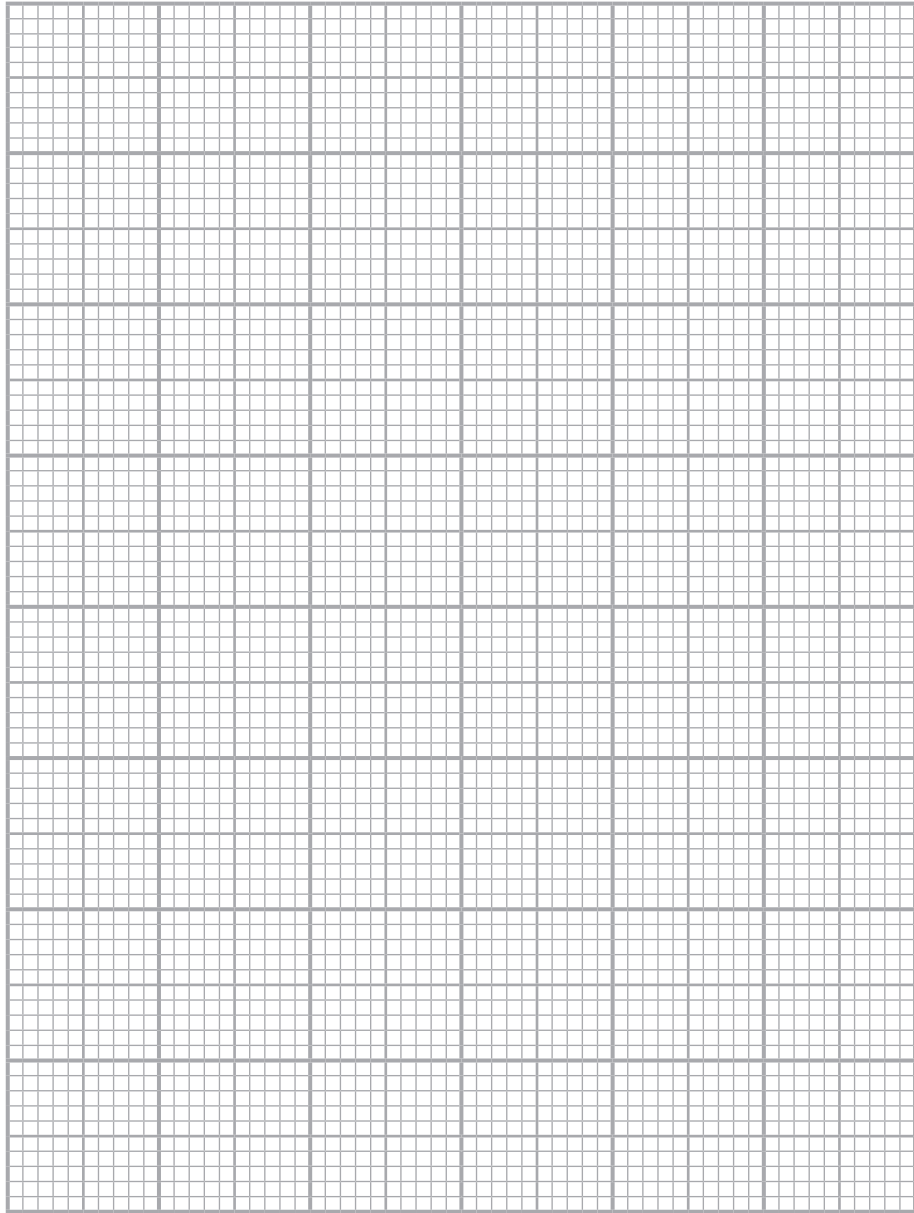
George wants to compare the number of crimes in these 2 years.

- (b) Write one statement to compare the figures for George.

(1)

Write your statement in the box below.





Here is the information about 2013 again.

	Jan to Mar	Apr to Jun	Jul to Sep	Oct to Dec
2013	514	563	494	505

George wants to find the average number of crimes **per month** for his assignment.

He calculates that the mean average number of crimes **per month** is 173

(c) Is George correct?

Show why you think this.

You must show a check of your calculation.

(3)

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



Write your check in the box below.

**(Total for Question 1 is 7 marks)**



2 George wants to write about car crime in his local area.

He finds this information about car crime in his local area.

<b>The number of offences per 1000 of the population</b>	
Criminal activity since 2010	Local statistics
Car crime	0.2153
Antisocial behaviour	0.578

George knows that about 105 000 people live in his local area.

How many car crimes have there been in the local area since 2010?

(3)

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



**(Total for Question 2 is 3 marks)**



3 George sees this statement in the local paper.

80% of people think there is **at least as much** crime as last year

George writes in his assignment

'2 in 5 people think there is **less** crime than last year.'

(a) Show why George is wrong. (3)

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



George wants to find out if people in the local area feel safe or unsafe to go out at night.

George decides to record separate data from men and women in these age ranges

- under 30
- 30 to 50
- over 50

He wants to collect all the data on one sheet of paper.

(b) Design a data collection sheet for George. (3)



Use the box below for your data collection sheet.

**(Total for Question 3 is 6 marks)**



**SECTION B: Building a games room**

**Answer all questions in this section.**

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

- 4** Marek runs a youth centre.  
He wants to build a games room on the side of the youth centre.

Marek needs a loan to pay some of the costs.  
He looks at options to pay back the loan.

<b>Option 1</b>	Pay £197 each month for 2 years
<b>Option 2</b>	Pay £84.49 each month for 5 years

Marek wants to know the difference in the total cost of the two options.

Find the difference in the total cost of the two options.

(3)

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



**(Total for Question 4 is 3 marks)**



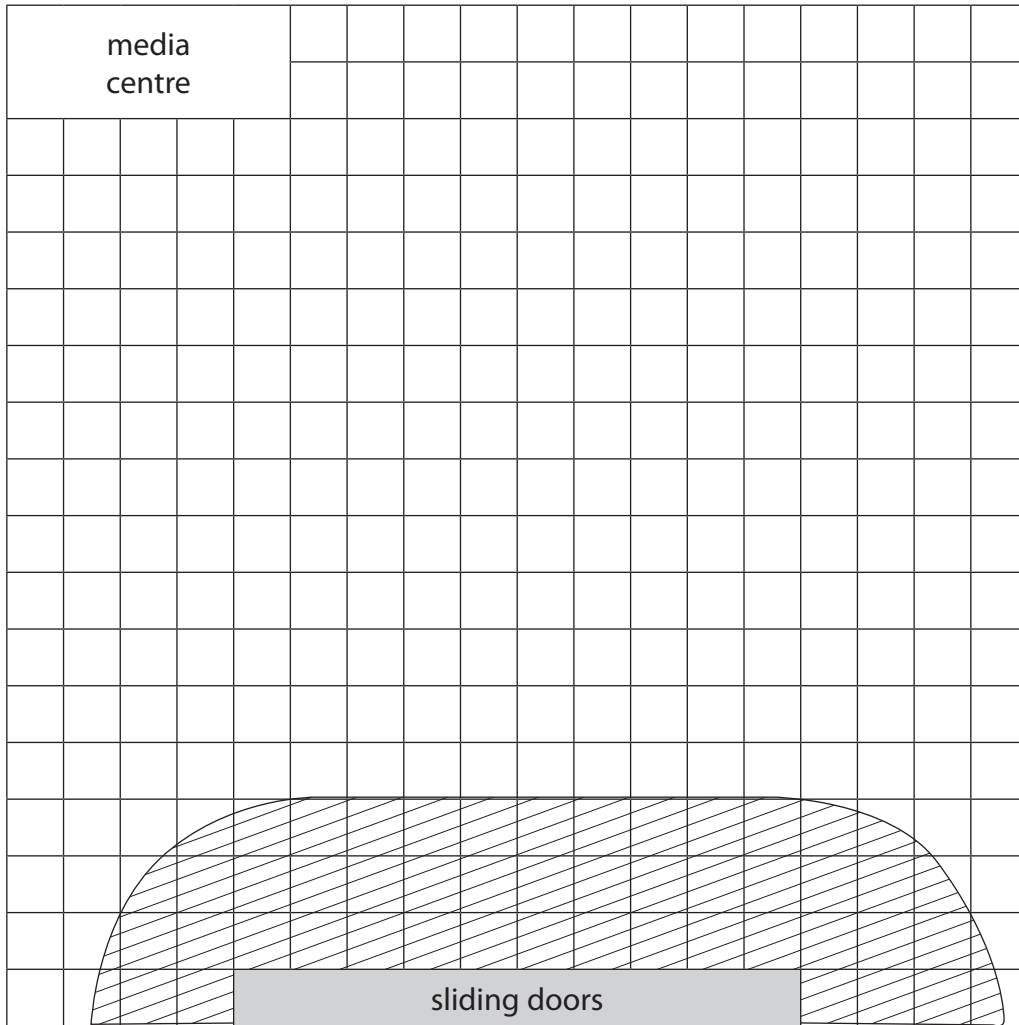


5 Marek draws a plan of the games room floor.


He wants to have a snooker table, a media centre and a seating area.

Marek shows the media centre and the sliding doors on the plan.

He also shows the space he needs to leave clear around the sliding doors.



Key: 1 square on the plan is 0.5 m by 0.5 m in the games room

 Space to leave clear

The space for the snooker table needs to be

- rectangular and 550 cm by 400 cm
- at least 1 m from the media centre.

The space for seating needs

- a rectangular area of 8 m<sup>2</sup>
- to be at least 1 metre from the snooker table space.

Draw the space for the snooker table and the space for seating on the plan.  
Remember to use the key and to label the diagram.

(4)

(Total for Question 5 is 4 marks)



6 Marek needs to hire a concrete mixer for the weekend.

He finds information from two suppliers.

**John & Son**  
Weekend hire  
£17.40  
Add VAT at 20%

**King & Lye**  
Weekend hire  
Total cost £29.94  
Get  $\frac{1}{3}$  of the cost off for  
booking now

Marek wants to pay the cheapest total cost.

Which supplier should Marek choose?

(5)

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



Large empty box for showing the solution.





A large rectangular area with a double-line border, intended for a student's answer to Question 6.

**(Total for Question 6 is 5 marks)**



P 4 5 0 2 4 A 0 1 1 2 0



7 Marek needs to buy some blocks to build the walls of the games room.

There are 3 walls to build.

Each wall is 9 m long and 2.2 m high.

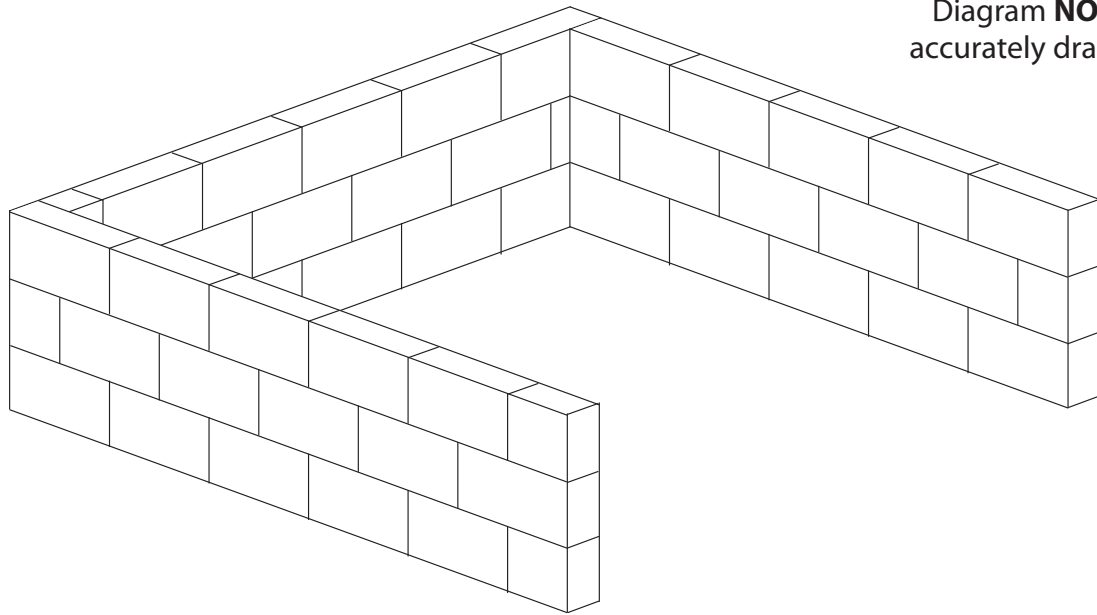


Diagram **NOT**  
accurately drawn

Marek knows that he needs 10 blocks for each  $1 \text{ m}^2$  of wall.

The blocks come in packs of 72

Marek thinks 8 packs are enough to build all 3 walls.

Is Marek correct?  
Show why you think this.

(4)

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





**(Total for Question 7 is 4 marks)**



P 4 5 0 2 4 A 0 1 3 2 0



**SECTION C: Dog walking**

**Answer all questions in this section.**

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

- 8 Charlene has a dog walking business.  
These are her charges.

**Cost for a 1 hour walk**  
first dog £10      each extra dog £6

**Discount**  
15% off the total cost if you book every day Mon to Fri

A customer wants to know how much it costs to walk 2 dogs for 1 hour each day from Monday to Friday next week.

The customer asks, 'will I pay less than £70?'

- (a) Will the customer pay less than £70?  
Show why you think this.

(4)

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



Large empty box for showing the solution.



Charlene wants to put an advert in the local paper.  
She wants an advert with 10 lines.

This is the rule to work out the cost of the advert.

$$C = 28(L - 7) + 144$$

**C** = the total cost (£)

**L** = the number of lines in the advert

Charlene can afford to pay up to £250 for the advert.

(b) Does an advert with 10 lines cost less than £250?

(3)

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



(Total for Question 8 is 7 marks)



9 Charlene walks dogs in Ashby, Burton and Edale. She gets these booking requests.

Place	Dog name	Days wanted
Ashby	Meg	Mon Tue Wed Thu Fri
Edale	Rex	Wed Thu Fri
Burton	Winston	Tue Wed
Edale	Chip	Tue Wed Thu Fri
Ashby	Sam	Mon Wed Fri
Burton	Molly	Mon Tue Wed
Burton	Toby	Mon Tue Wed Thu
Edale	Sadie	Mon Tue Wed Thu

Charlene

- wants to fill as many spaces as possible
- **only** makes complete bookings for any dog
- can walk up to 4 dogs in each place on each day
- may not be able to accept all the booking requests.

Book dog walks for Charlene.  
Remember to fill as many spaces as possible.

(4)

Fill in the booking sheet with the names of the dogs.

Key:  Dog walk already booked  Dog walk space available.

Place	Mon	Tue	Wed	Thu	Fri
<b>Ashby</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Burton</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Edale</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>





There are two copies of the booking sheet.  
 You only need to complete one.  
 Please make it clear which is your final answer.

Key:  Dog walk already booked     Dog walk space available.

Place	Mon	Tue	Wed	Thu	Fri
<b>Ashby</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Burton</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Edale</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(Total for Question 9 is 4 marks)



10 Charlene makes notes about what she has to do today.

Start at home at 8.30 am  
Finish all work by 4.30 pm

Walk dogs in Burton -  $1\frac{1}{2}$  hours  
Walk dogs in Ashby -  $1\frac{1}{2}$  hours  
Walk dogs in Edale -  $1\frac{1}{2}$  hours  
Meet Debbie in Burton for coffee and cake at 11.15 am - allow 1 hour to  $1\frac{1}{4}$  hours  
Paperwork at home - 45 minutes  
Be at home by 4.30 pm

Charlene sketches this map of the local area.  
She allows 15 minutes to travel between any two places linked on the map.

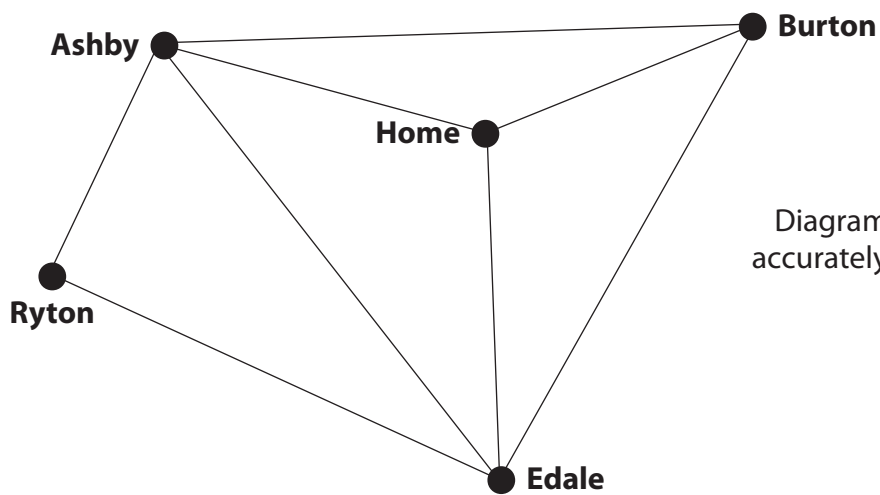


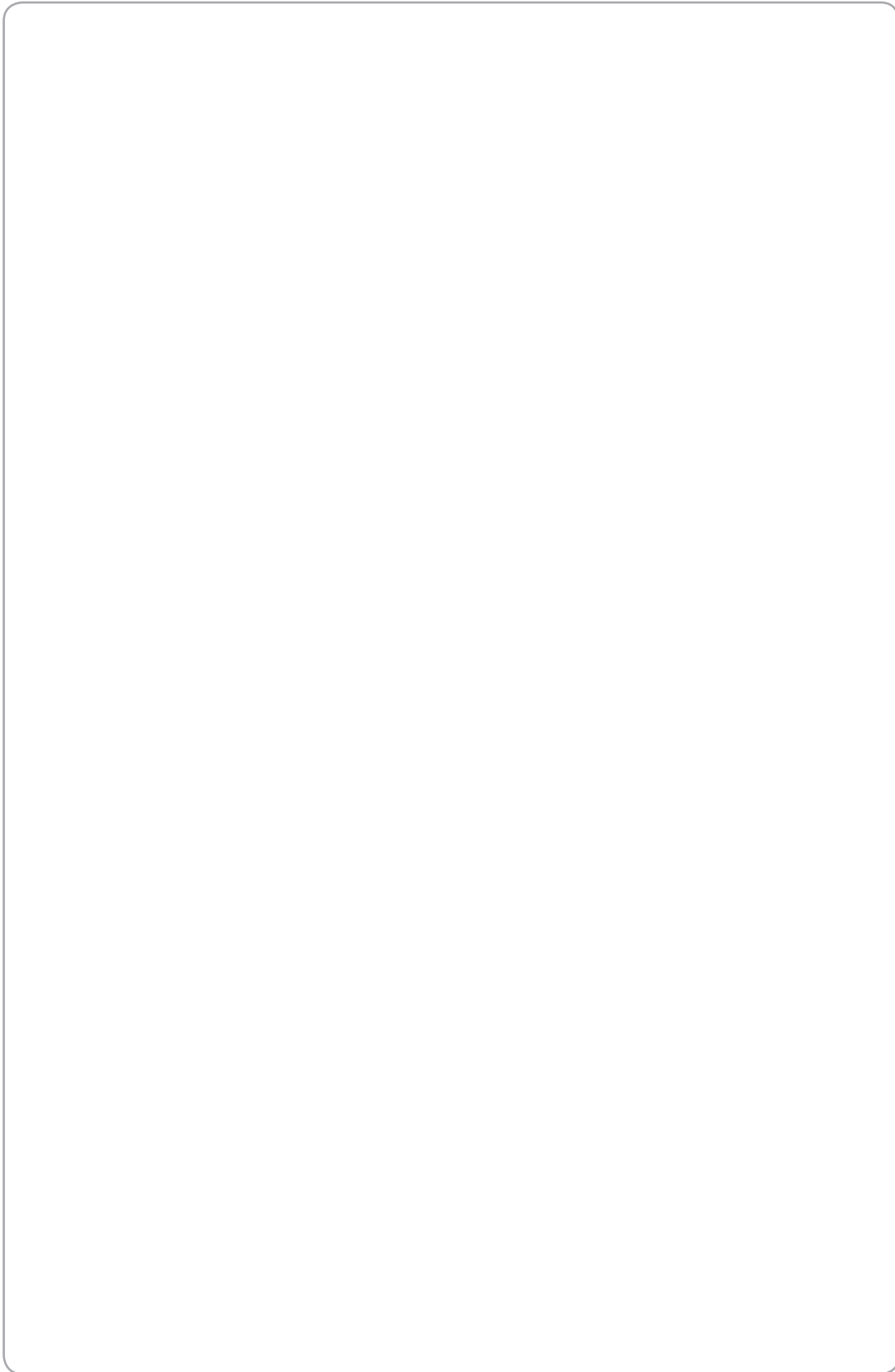
Diagram **NOT** accurately drawn

Charlene needs a time plan to fit in all the work.  
It must show the start time and the finish time for each activity.

Make a time plan for Charlene.  
Remember to check your time plan. (5)



Use the box below to show your time plan.



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

**TOTAL FOR PAPER IS 48 MARKS**





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