AQA

GCSE
APPLICATIONS OF MATHEMATICS (LINKED PAIR)

F

Foundation Tier   Unit 1   Finance and Statistics

Friday 6 November 2015   Morning   Time allowed: 1 hour 30 minutes

Materials
For this paper you must have:
- a calculator
- mathematical instruments.

Instructions
- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work that you do not want to be marked.
- If your calculator does not have a π button, take the value of π to be 3.14 unless another value is given in the question.

Information
- The marks for questions are shown in brackets.
- The maximum mark for this paper is 80.
- The quality of your written communication is specifically assessed in Questions 10, 16 and 20. These questions are indicated with an asterisk (*).
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.
- You are expected to use a calculator where appropriate.
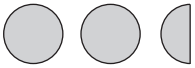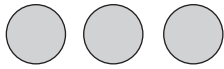
Advice
- In all calculations, show clearly how you work out your answer.

Answer **all** questions in the spaces provided.

1 The pictogram shows how many computer games Andy, Chris and Beth bought last month.

Key ⬤ represents 2 computer games

Andy	⬤ ⬤ ◖
Chris	⬤ ⬤ ⬤
Beth	⬤
Leah	

1 (a) Chris bought twice as many computer games as Leah.

Complete the pictogram for Leah.

[2 marks]

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1 (b) Beth says,

"Altogether we bought more than 18 computer games."

Is she correct?
You **must** show your working.

[2 marks]

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2 A box contains 32 pens.
In the box there are

20 black pens
5 red pens
5 blue pens
2 green pens.

A pen is taken at random from the box.

2 (a) Which two colours are equally likely to be taken?

[1 mark]

Answer .... and ....

2 (b) Circle the word describing the probability of taking a **red** pen.

[1 mark]

impossible   unlikely   evens   likely   certain

2 (c) Circle the word describing the probability of taking a **purple** pen.

[1 mark]

impossible   unlikely   evens   likely   certain

2 (d) A different box contains 12 pens.
The pens are gold or silver.
The probability of taking a gold pen from this box is 'evens'.

How many gold pens are in the box?

[1 mark]

Answer ....

8

0 3

3 Here is part of a bank statement.

Date	Money in (£)	Money out (£)	Balance (£)
6th July			927.48
8th July		246.00	....
11th July		132.50	548.98
14th July	37.20		....

Complete the two missing values in the balance column.

[2 marks]

4   Anya makes 18 bags.

She sells half of the bags at the school fair.

She sells one-third of the bags she has left to her friends.

How many of the bags has she **not** sold?

[4 marks]

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Answer ....

Turn over for the next question

Turn over ▶

5 Some men and women were asked which sport they most liked to watch.
The table shows the results.

Sport	Men	Women
Football	14	2
Tennis	2	13
Golf	9	4
Athletics	5	12

5 (a) Which sport is the most popular overall?
You **must** show your working.

[2 marks]

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Answer ....

5 (b) On the grid, draw a suitable diagram to show the information in the table.

[4 marks]

6

Turn over ▶

6   Eva sees these prices for burgers and bread rolls.

Burgers

Pack of 8

£3.65

Bread rolls

Pack of 12

£1.95

Eva has £15
She wants to buy 24 burgers and 24 bread rolls.

Does she have enough money?
You **must** show your working.

[4 marks]

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7   A plumber uses the formula

$$C = 25 + 40h$$

to work out the charge, £C, for a job that takes h hours.

7 (a)   A job takes 7 hours.

How much does the plumber charge?

[2 marks]

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Answer £ ....

7 (b)   The plumber charges £545 for a different job.

How many hours does the job take?

[2 marks]

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Answer .... hours

Turn over for the next question

8

Turn over ▶

8   Carol is making bread.
Her recipe gives these times.

Action	Time
Mixing	15 minutes
Rising	2 hours 10 minutes
Baking	40 minutes

The bread must cool for at least 20 minutes after baking.
Carol wants to eat the bread at 5pm

What is the latest time she can start making the bread?

[4 marks]

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Answer ....

9 Here are the prices of packs of sweets.

small	medium	large
54p	82p	£1.20

Harry spends **exactly** £5 on buying packs of sweets.
He buys at least one of each pack size.

Work out how many of each pack size he buys.

[3 marks]

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Answer .... small packs

.... medium packs

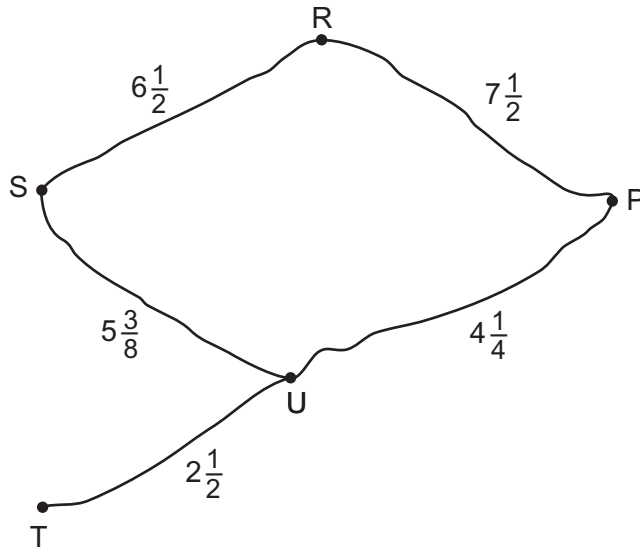.. large packs

Turn over ▶

*10 The diagram is a map of roads and villages.
The distances, in miles, between the villages are shown.

Javed drives from Radley (R) to Turton (T).
He uses the shortest route.

Work out the distance he drives.
You **must** show your working.

[3 marks]

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Answer .... miles

11 Teri has a gross salary of £16 500 per year.

The first £10 000 of her salary is not taxed.
The tax rate is 20%

Work out her salary after tax has been deducted.

[4 marks]

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Answer £ ....

Turn over for the next question

Turn over ▶

12 The stem-and-leaf diagram shows the times, in minutes, taken by some Year 7 pupils to complete a puzzle.

Key 2 | 7 represents 27 minutes

1	9						
2	2	3	6	7			
3	0	2	3	4	6	7	7
4	2						

12 (a) Work out the range.

[1 mark]

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Answer .... minutes

12 (b) Work out the median.

[1 mark]

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Answer .... minutes

12 (c)   Some Year 8 pupils completed the same puzzle.
Here is some information about their times.

range	18 minutes
median	29 minutes

Compare the results for the two year groups.

[2 marks]

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13 (a)   A games console usually costs £275
The cost is reduced by 15%

Work out the reduced price.

[3 marks]

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Answer £ ....

13 (b)   A coat is reduced by 35%

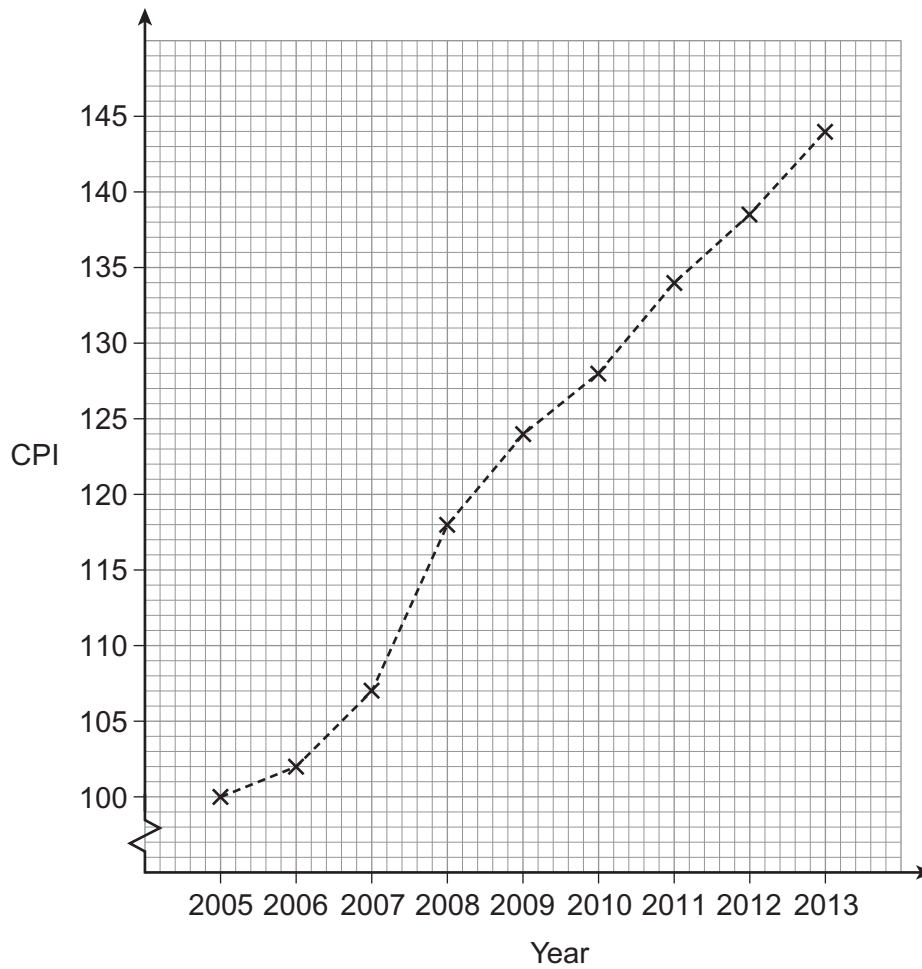Circle the multiplier that works out 35%

[1 mark]

0.035   0.35   3.5   1.35

Turn over ▶

8

14 The time series graph shows the Consumer Price Index (CPI) for food each year from 2005 to 2013

14 (a) Write down the Consumer Price Index in 2010

[1 mark]

Answer ....

14 (b) Between which consecutive years did the Consumer Price Index increase the most?

[1 mark]

Answer .... and ....

14 (c) A loaf of bread cost £1.00 in 2005

Use the graph to estimate how much the loaf cost in 2013

[1 mark]

Answer £ ....

14 (d) In 2011 Elly spent £268 per month on groceries.

Use the graph to estimate how much she would have spent on the same groceries in 2007

[3 marks]

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Answer £ ....

Turn over for the next question

Turn over ▶

15 Here are three scatter diagrams.
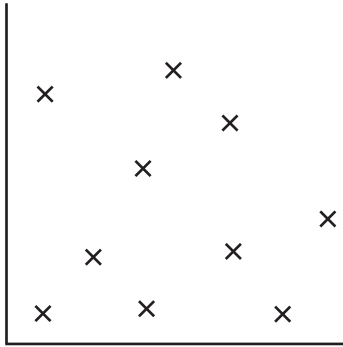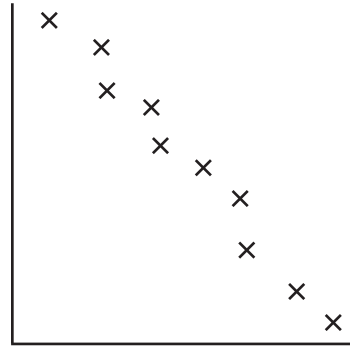
Diagram 1   **Diagram 2**   **Diagram 3**

Here are three pairs of variables.

A The age of children and the shoe size of children.

B The number of hours of sunshine and the number of umbrellas sold.

C The marks of students in a maths test and the distance each student travels to school.

Match each scatter diagram to a pair of variables.

[2 marks]

A Diagram ....

B Diagram ....

C Diagram ....

*16 Ali sat two maths test papers.
His marks were

      Paper 1 $\dfrac{54}{75}$

      Paper 2 $\dfrac{45}{60}$

For which paper did he get the higher percentage?
You **must** show your working.

[3 marks]

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Answer ....

Turn over for the next question

17 A company makes light bulbs.
The company wants to test that the light bulbs work.

17 (a) Explain why the company should test a sample and not the whole population.

[1 mark]

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17 (b) The company decides to test the first five light bulbs made one Friday morning.

Give **two** criticisms of this sampling method.

[2 marks]

Criticism 1 ....

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Criticism 2 ....

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18 200 adults were asked to choose whether they preferred to travel on holiday by road, rail or air.

- 30% of the adults chose road.
- Three times as many women as men chose road.
- 112 of the adults were women.
- One quarter of the women chose rail.
- 37 of the men chose air.

Work out the total number of adults who chose rail.

[6 marks]

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Answer ....

9

Turn over ▶

19 The speeds of 100 vehicles driving through a housing estate were recorded one day.

Speed, s (mph)	Frequency		
$10 < s \leqslant 15$	17		
$15 < s \leqslant 20$	46		
$20 < s \leqslant 25$	22		
$25 < s \leqslant 30$	10		
$30 < s \leqslant 35$	5		

19 (a) Work out an estimate for the mean speed.

[4 marks]

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Answer .... mph

19 (b) The speed limit on roads through the housing estate is 20 miles per hour.

Did vehicles on this estate usually drive within the speed limit?
Give a reason for your answer.

[1 mark]

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*20 Ben, Jayne and Phil collect football stickers.

Ben has x stickers.

Jayne has 12 more stickers than Ben.

Phil has twice as many stickers as Jayne.

Altogether they have 204 stickers.

Set up and solve an equation to find the value of x.

[5 marks]

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$x =$ ....

END OF QUESTIONS

10

There are no questions printed on this page

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