Please check the examination details below before entering your candidate information

Candidate surname	Other names

Pearson Edexcel International Award in Lower Secondary

Centre Number	Candidate Number

Time 1 hour 20 minutes

Paper reference **LMA11/01**

Mathematics

Year 9
Achievement Test

You must have:
Calculator, ruler, pair of compasses.

Total Marks

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.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- Calculators may be used.
- Any diagrams may NOT be accurately drawn, unless otherwise indicated.
- You must **show all your working out** with **your answer clearly identified** at the **end of your solution**.

Information

- The total mark for this paper is 80
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.
- Good luck with your examination.

Turn over ▶

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P 6 5 8 2 8 A 0 1 2 0

Pearson

SECTION A

Answer ALL questions.

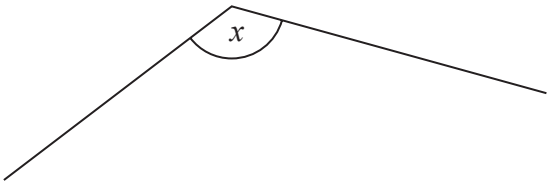
Some questions must be answered with a cross in a box ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

1 Simplify $14f - 7y + 11f + 5y$

$3f - 12y$ ☒ $3f - 2y$ ☒ $25f - 12y$ ☒ $25f - 2y$ ☒

(Total for Question 1 is 1 mark)

2 Which word describes the angle marked x on the diagram below?



Acute ☒ Obtuse ☒ Reflex ☒ Right ☒

(Total for Question 2 is 1 mark)

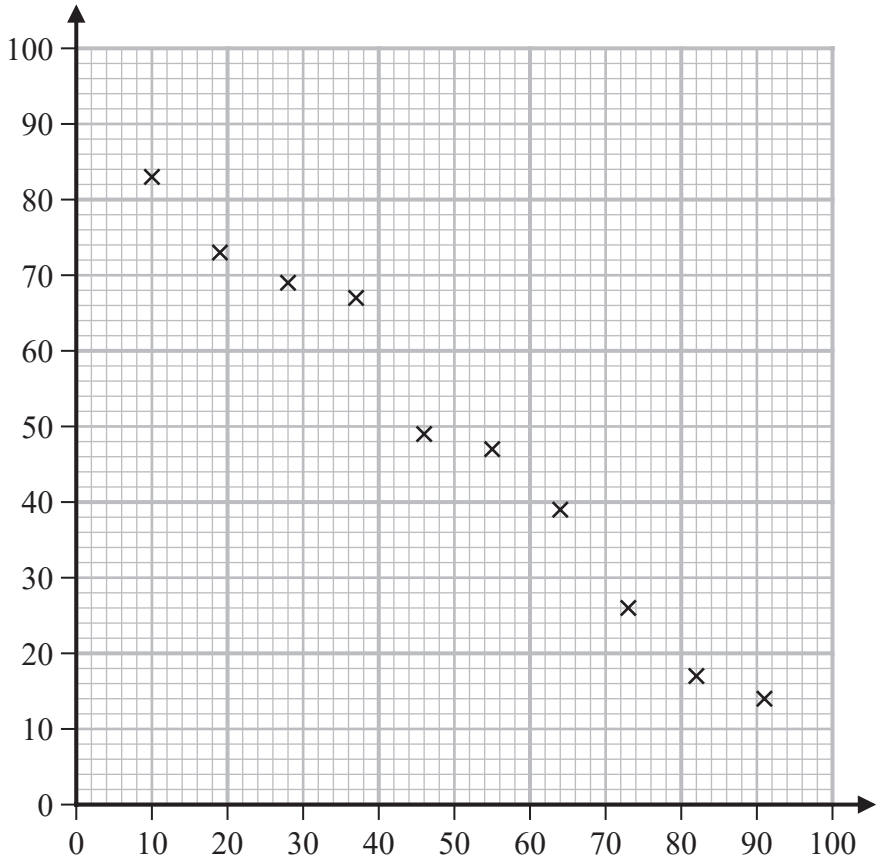
3 Find the mean of

3.41 4.56 4.56 5.26 6.35 7.11 8.93

4.56 ☒ 5.26 ☒ 5.52 ☒ 5.74 ☒

(Total for Question 3 is 1 mark)

4 Which word describes the correlation shown on the scatter graph below?



Direct ☒ Downward ☒ Negative ☒ Positive ☒

(Total for Question 4 is 1 mark)

5 Students in a class are asked their age and how many siblings they have.

The results are recorded in the table below.

	No siblings	One sibling	Two siblings	Three siblings
Age 13	5	7	6	2
Age 14	3	5	4	0

How many 13-year-old students have more than one sibling?

8 ☒ 12 ☒ 15 ☒ 20 ☒

(Total for Question 5 is 1 mark)

6 What is 1.3579 to 3 decimal places?

1.35	1.36	1.357	1.358
☒	☒	☒	☒

(Total for Question 6 is 1 mark)

7 Chhaya, Kinjal and Sajni share $240 in the ratio 8 : 4 : 3

How much will Kinjal get?

$48	$60	$64	$128
☒	☒	☒	☒

(Total for Question 7 is 1 mark)

8 What is the highest common factor of 18 and 30?

3	6	90	540
☒	☒	☒	☒

(Total for Question 8 is 1 mark)

9 Which of these values is the lowest?

0.567	$\frac{5}{9}$	57%	$\frac{6}{11}$
☒	☒	☒	☒

(Total for Question 9 is 1 mark)

10 A box contains only 5 red beads, 6 yellow beads and 7 green beads.

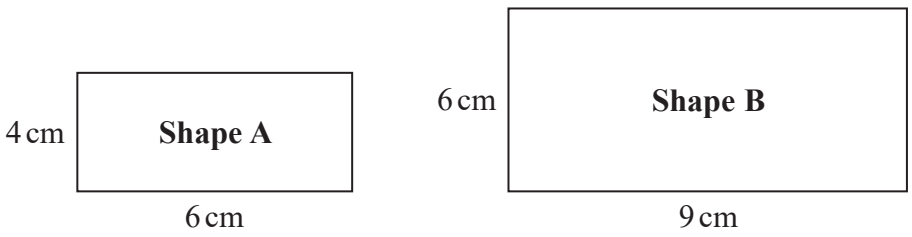
One bead is taken from the box at random.

What is the probability that the bead taken is green?

$\frac{1}{3}$ ☒ $\frac{7}{11}$ ☒ $\frac{7}{18}$ ☒ $\frac{11}{18}$ ☒

(Total for Question 10 is 1 mark)

11 Find the scale factor that shape A should be enlarged by to get shape B.



$\frac{2}{3}$ ☒ 1.5 ☒ 2 ☒ 3 ☒

(Total for Question 11 is 1 mark)

12 If $a = -10$, $b = -4$ and $c = 3$, find the value of

$$a + (3b + c)^2$$

−91 ☒ −13 ☒ 71 ☒ 215 ☒

(Total for Question 12 is 1 mark)

13 The price of a holiday has increased by 10%.

The holiday now costs \$990

How much would the holiday have cost before the price increase?

\$891	\$900	\$1 089	\$1 100
☒	☒	☒	☒

(Total for Question 13 is 1 mark)

14 How can the recurring decimal below be written as a fraction?

0.37373737…

$\frac{37}{99}$	$\frac{37}{100}$	$\frac{37373737}{99999999}$	$\frac{37373737}{100000000}$
☒	☒	☒	☒

(Total for Question 14 is 1 mark)

15 Solve the inequality $5(12 - 3x) < 30$

$x < -2$	$x > -2$	$x < 2$	$x > 2$
☒	☒	☒	☒

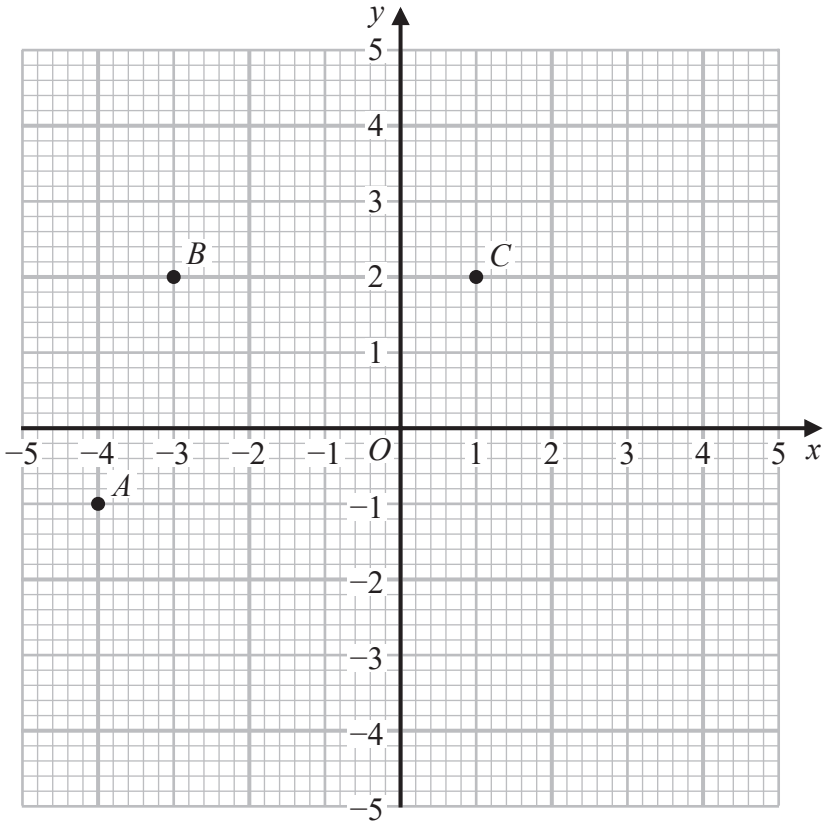
(Total for Question 15 is 1 mark)

TOTAL FOR SECTION A IS 15 MARKS

SECTION B

Answer ALL questions.

16 (a) On the grid, draw the graph of $y = -3$ for values of x from -5 to 5



(1)

(b) Write down the coordinates of D such that $ABCD$ is a parallelogram.

.....

(1)

(c) Find the midpoint of the line with end points $(-6, 5)$ and $(2, 12)$.

.....

(2)

(Total for Question 16 is 4 marks)

17 (a) Work out $12 + 24 \div (8 - 5)$

.....

(2)

(b) Write 180 as a product of its prime factors.

.....

(2)

(c) Find the nth term of the sequence

9, 17, 25, 33, 41, …

.....

(2)

(Total for Question 17 is 6 marks)

18 20 students are asked to record their gender **and** which foreign language they prefer.

The results are displayed in the table below, although some of the values are hidden.

	Male	**Female**	**Total**
Spanish			13
German	6		
Total	9		20

(a) The teacher picks one of the female students at random.

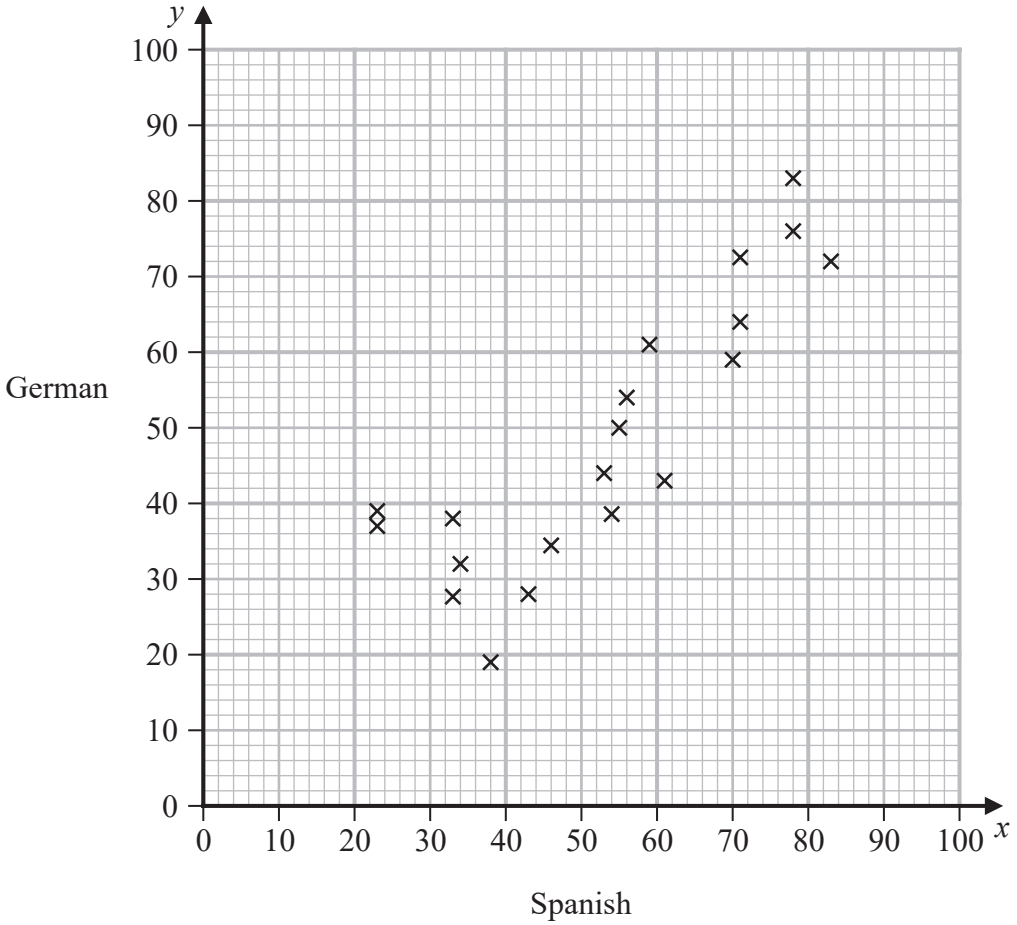
What is the probability that the female student chosen prefers Spanish?

.....

(2)

Each of the 20 students take a test in Spanish and a test in German.

The scatter graph shows their results.



(b) Draw a line of best fit on the scatter graph.

(1)

(c) Another student from the same class scores 65 on the Spanish test.

What would this student be expected to score on the German test?

.....

(1)

(Total for Question 18 is 4 marks)

19 (a) Expand and simplify

$$9k + 14 - 4(3k - 6)$$

.....

(2)

(b) Expand and simplify

$$(w + 4)(w - 5)$$

.....

(2)

(c) Make q the subject of

$$p = \sqrt{\frac{7q}{5}}$$

.....

(3)

(d) Solve

$$\frac{7x + 1}{5} = 2x + 5$$

.....

(3)

(e) Write in its simplest form

$$y^0$$

.....

(1)

(f) Write in its simplest form

$$\frac{z^4 \times z^3}{z^2}$$

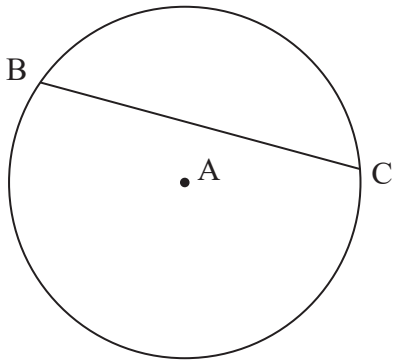
.....

(2)

(Total for Question 19 is 13 marks)

20 (a) This circle has centre A.

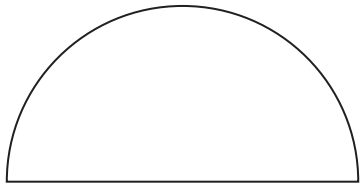
What name is given to the straight line that joins B and C?



.....

(1)

(b) This diagram shows a semicircular disc.



(i) Calculate the area of the disc.

..... cm^2

(2)

(ii) Calculate the perimeter of the disc.

..... cm

(2)

(Total for Question 20 is 5 marks)

21 A man drives a truck for 2 hours and 15 minutes at an average speed of 36 km / h.

How far does he travel?

..... km

(Total for Question 21 is 2 marks)

22 Calculate the size of angle c in the kite below.

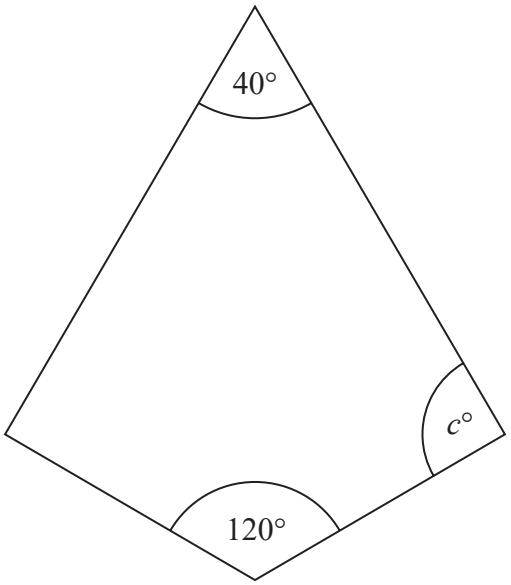


Diagram **NOT** accurately drawn

.....°

(Total for Question 22 is 2 marks)

23 The heights (h), in centimetres, of 20 students are recorded in the table.

Height (h cm)	$140 \leqslant h < 150$	$150 \leqslant h < 160$	$160 \leqslant h < 170$	$170 \leqslant h < 180$
Frequency	3	9	7	1

Calculate an estimate of the mean height of the students.

..... cm

(Total for Question 23 is 3 marks)

24 The cost of building a new stadium is \$800 000 000 to one significant figure.

What is the lower bound and upper bound of this cost?

Lower bound = ...

Upper bound = ...

(Total for Question 24 is 2 marks)

25 (a) The price of a textbook increases from \$16.50 to \$20.46

Work out the percentage increase in price.

..... %

(2)

(b) A different textbook is on sale in two different bookshops.

In Beechfield Books, the cost of the textbook was \$17.50
It is increased by 16%.

In Clifton Bookstore, the cost of the textbook was \$25.35
It is reduced by 20%.

Which bookshop is now selling the textbook for the lower price?

Show your working clearly.

.....

(3)

(Total for Question 25 is 5 marks)

26 Calculate the length of the side DE.

Give your answer to one decimal place.

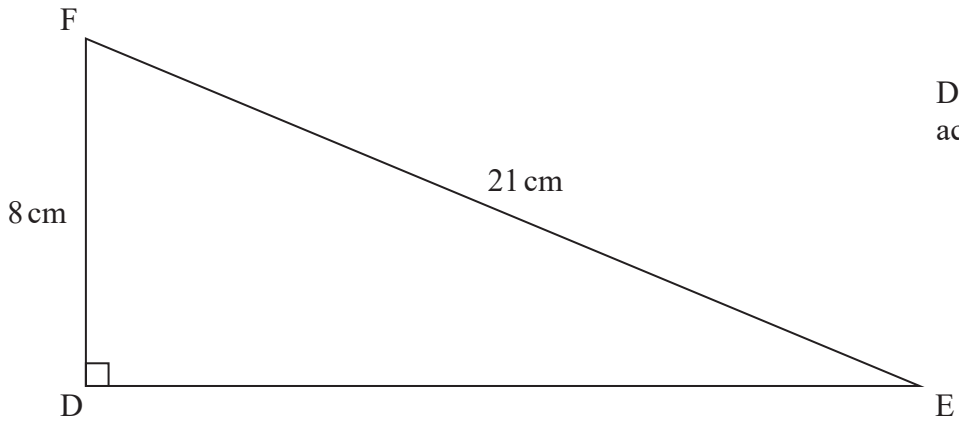


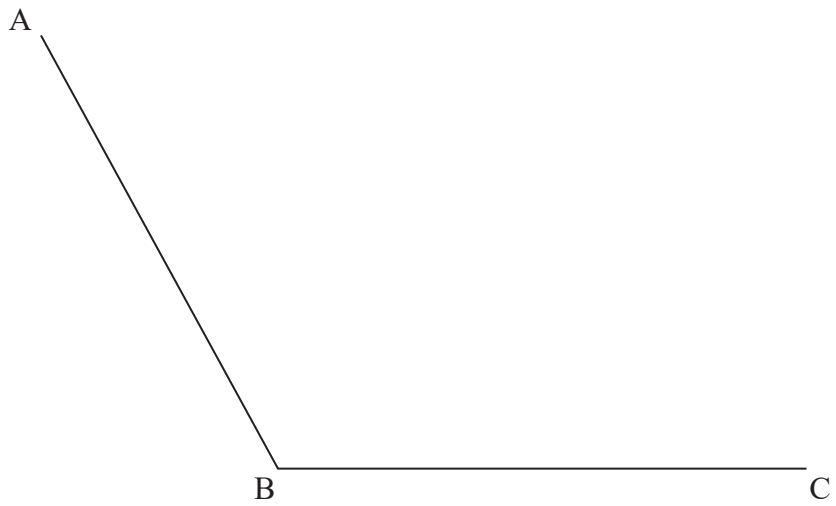
Diagram **NOT** accurately drawn

..... cm

(Total for Question 26 is 3 marks)

27 Use ruler and compasses to construct the angle bisector of the angle ABC.

You must show all your construction lines.



(Total for Question 27 is 2 marks)

28 Work out

$$7.3 \times 10^4 + 2.9 \times 10^3$$

Give your answer in standard form.

.....

(Total for Question 28 is 2 marks)

29 The ages of all ten Mathematics teachers at a school are recorded below.

31 43 25 37 28 22 25 32 31 36

Two new Mathematics teachers then join the school.

When their ages are added to this list:

– the range increases by 5
– the mean increases by 1
– the median remains unchanged
– the mode remains the same.

How old are the two new Mathematics teachers?

You must show your working.

..... and .....

(Total for Question 29 is 3 marks)

30 A farmer has 14 fence panels that he will use to make a pen for his pigs.

Each fence panel is 1 metre long and the pen must be rectangular.

Each pig needs 2 m^2 of space to live in.

What is the greatest number of pigs that the pen can hold?

Show your working clearly.

..... pigs

(Total for Question 30 is 3 marks)

31 An isosceles triangle has base 10 cm and base angles of 70°

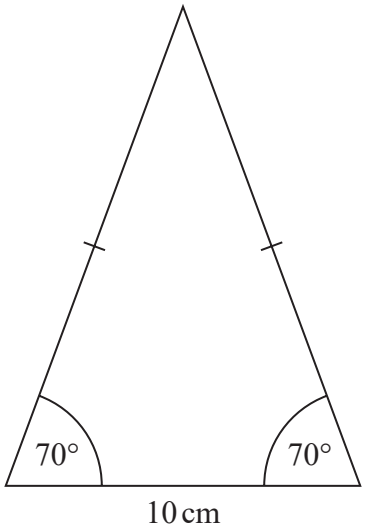


Diagram **NOT** accurately drawn

Calculate the height of the triangle.

Give your answer to 3 significant figures.

Show your working clearly.

..... cm

(Total for Question 31 is 3 marks)

32 A company employs only engineers, administrators and managers.

The ratio of engineers to administrators is 4:3
The ratio of administrators to managers is 4:1

Some of the administrators are male and the rest are female.
The ratio of male administrators to female administrators is 3:5

What percentage of all employees are female administrators?

Give your answer to 3 significant figures.

Show your working clearly.

..... %

(Total for Question 32 is 3 marks)

TOTAL FOR SECTION B IS 65 MARKS
TOTAL FOR THIS PAPER IS 80 MARKS