Please check the examination details below before entering your candidate information

Candidate surname	Other names

Centre Number | Candidate Number

Pearson Edexcel International Award in Lower Secondary

Time 1 hour 20 minutes

Paper reference **LMA11/01**

Mathematics

Year 9
Achievement Test

You must have: Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

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.

Turn over ▶

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Q:1/1/1/1/

P 6 9 5 4 8 A 0 1 2 4

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 Which of these shapes has only one line of symmetry?

Equilateral triangle	Kite	Parallelogram	Rhombus
☒	☒	☒	☒

(Total for Question 1 is 1 mark)

2 Which of the lists below includes all the common factors of 16 and 20?

1, 2, 4	1, 2, 4, 5, 8, 10, 16, 20	2, 2	80, 160, 240, ...
☒	☒	☒	☒

(Total for Question 2 is 1 mark)

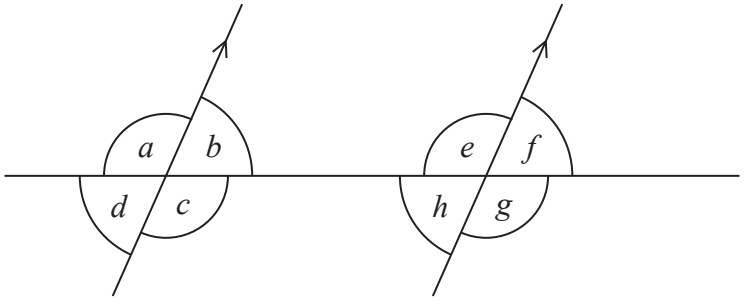
3 Simplify fully

$$9\,(2b + 8) + 4\,(7b - 5)$$

$46b + 3$	$46b + 13$	$46b + 52$	$46b + 92$
☒	☒	☒	☒

(Total for Question 3 is 1 mark)

4 Which of these is a pair of corresponding angles?



a & *e* ☒ *b* & *d* ☒ *c* & *h* ☒ *d* & *f* ☒

(Total for Question 4 is 1 mark)

5 What name is given to a straight line that connects two points on the circumference of a circle but does NOT pass through the centre of the circle?

Chord ☒ Diameter ☒ Radius ☒ Segment ☒

(Total for Question 5 is 1 mark)

6 What is 0.07936 written to 3 significant figures?

0.08 ☒ 0.079 ☒ 0.0793 ☒ 0.0794 ☒

(Total for Question 6 is 1 mark)

7 The ratio of men to women who work at a college is 3:5

There are 120 women who work at the college.

How many men work at the college?

45	72	75	200
☒	☒	☒	☒

(Total for Question 7 is 1 mark)

8 Work out the value of

$$1\frac{1}{6} - \frac{3}{4}$$

$\frac{5}{12}$	$\frac{13}{12}$	$\frac{23}{12}$	$\frac{31}{12}$
☒	☒	☒	☒

(Total for Question 8 is 1 mark)

9 Work out the value of

$$100 + \left(\sqrt{121} \times 4 - 13\right) - 7^2$$

−48	60	82	382
☒	☒	☒	☒

(Total for Question 9 is 1 mark)

10 A teacher chooses one letter from the word SCIENCE and one letter from the word HISTORY.

What is the probability that he chooses the letter I from both words?

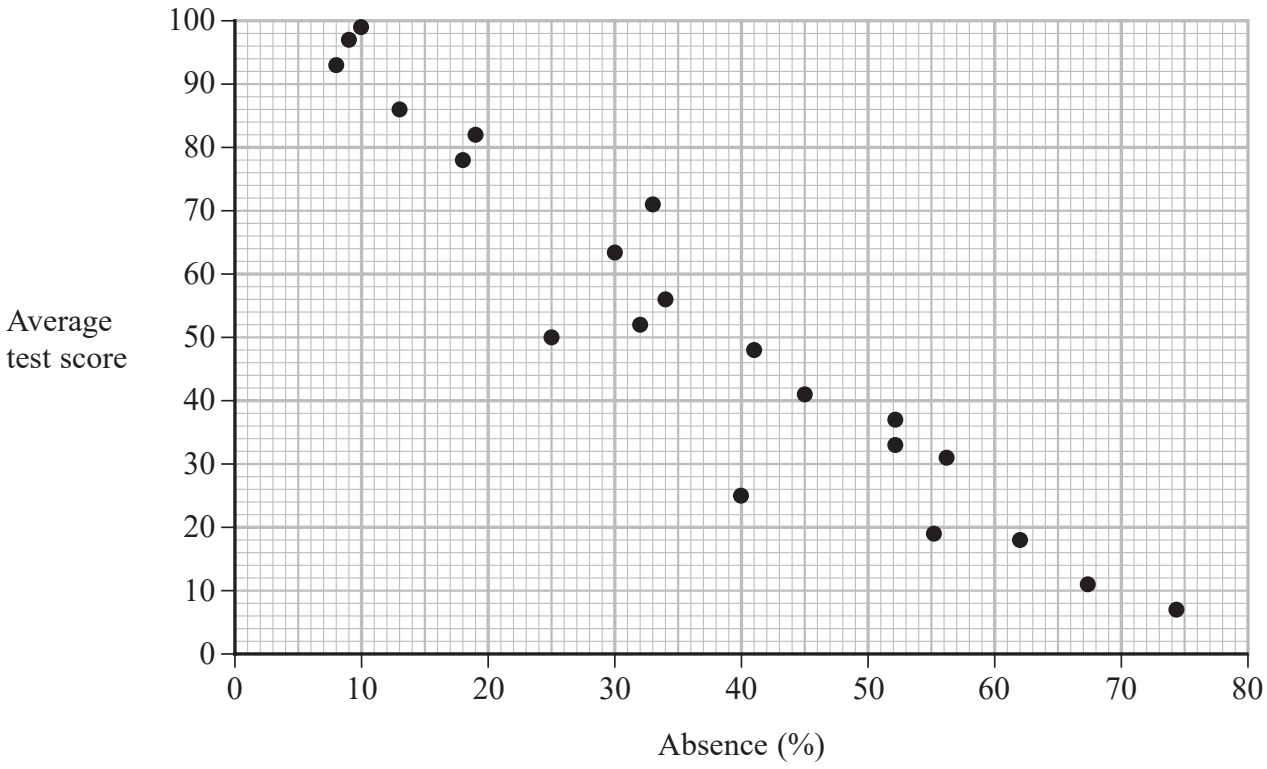
$\frac{2}{7}$ ☒ $\frac{2}{14}$ ☒ $\frac{1}{49}$ ☒ $\frac{1}{91}$ ☒

(Total for Question 10 is 1 mark)

11 The absence and average test score of each student in a class are shown in a scatter graph.

A student with 25% absence joins the class.

What would be the best estimate of his average test score?



40 ☒ 50 ☒ 60 ☒ 70 ☒

(Total for Question 11 is 1 mark)

12 A telephone company uses this formula to calculate how much a customer must pay

$$T = 0.25p + 0.2n + 15$$

where
T is the total cost (in \$)
p is the number of minutes on calls during peak times
n is the number of minutes on calls during non-peak times

A customer spends 60 minutes on calls during non-peak times.

The total cost that she must pay is \$51

How many minutes did she spend on calls during peak times?

42	96	105	156
☒	☒	☒	☒

(Total for Question 12 is 1 mark)

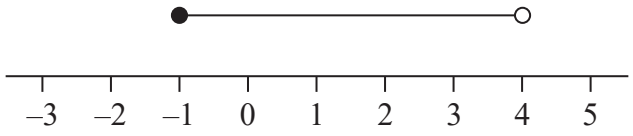
13 Factorise

$$x^2 - 10x + 24$$

$(x - 2)(x + 12)$	$(x + 2)(x - 12)$	$(x - 4)(x - 6)$	$(x - 4)(x + 6)$
☒	☒	☒	☒

(Total for Question 13 is 1 mark)

14 Which inequality is illustrated on the number line below?



$-1 < x < 4$ ☒ $-1 < x \leqslant 4$ ☒ $-1 \leqslant x < 4$ ☒ $-1 \leqslant x \leqslant 4$ ☒

(Total for Question 14 is 1 mark)

15 Find a solution to the equation

$$x^2 + 30 = 226$$

$x = 14$ ☒ $x = 16$ ☒ $x = 98$ ☒ $x = 128$ ☒

(Total for Question 15 is 1 mark)

TOTAL FOR SECTION A IS 15 MARKS

SECTION B

Answer ALL questions.

16 (a) Find the perimeter of the shape below.

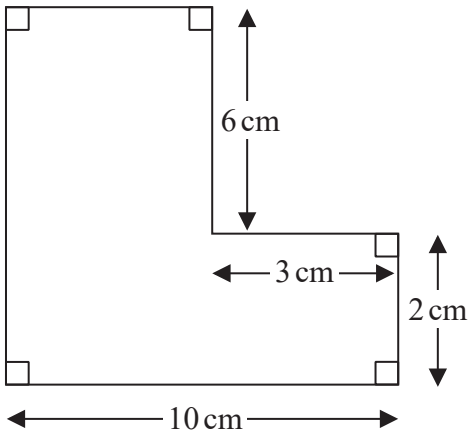


Diagram **NOT** drawn accurately

..... cm

(2)

(b) Calculate the size of the angle marked x in the kite below.

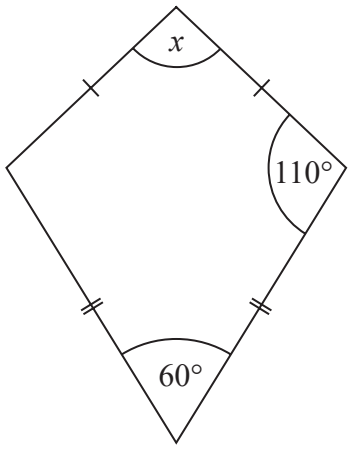


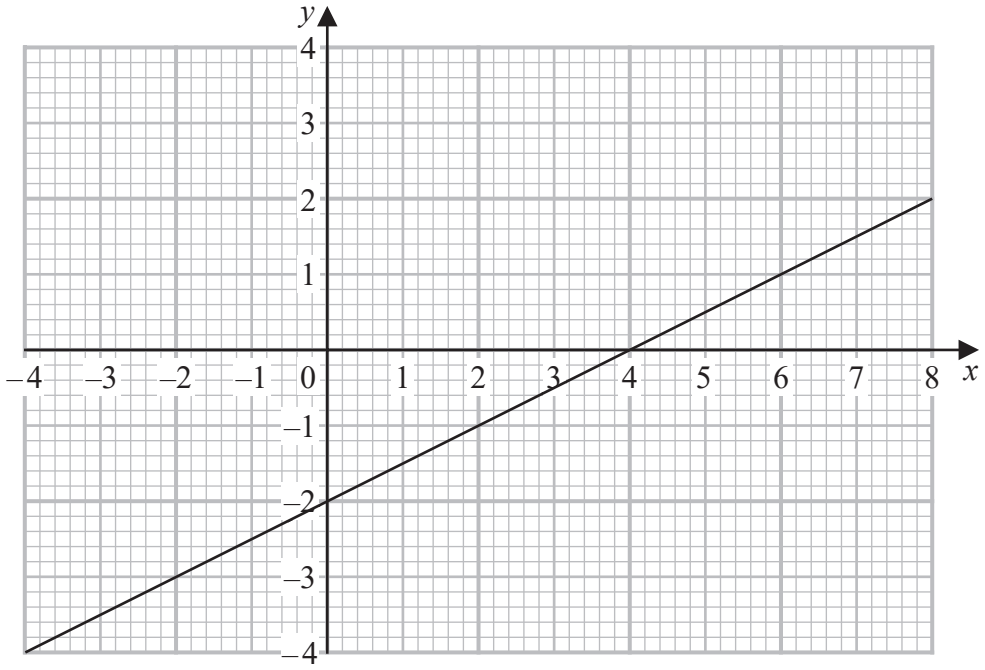
Diagram **NOT** drawn accurately

°

(2)

(Total for Question 16 is 4 marks)

17 (a) Find the gradient of the line below.



.....

(2)

(b) On the axes above, draw the line $x = 2$

(1)

(Total for Question 17 is 3 marks)

18 A man shares $100 between his son and his daughter in the ratio 9:7

How much more does his son receive than his daughter?

$ .....

(Total for Question 18 is 2 marks)

19 A group of students is made up of boys and girls.

Each student gets a red pen or a green pen.

The two-way table below shows how many students get red pens or green pens.

	Red pens	**Green pens**	**TOTAL**
Boys	9		17
Girls	13		
TOTAL			36

(a) Complete the table.

(2)

(b) One boy is selected at random.

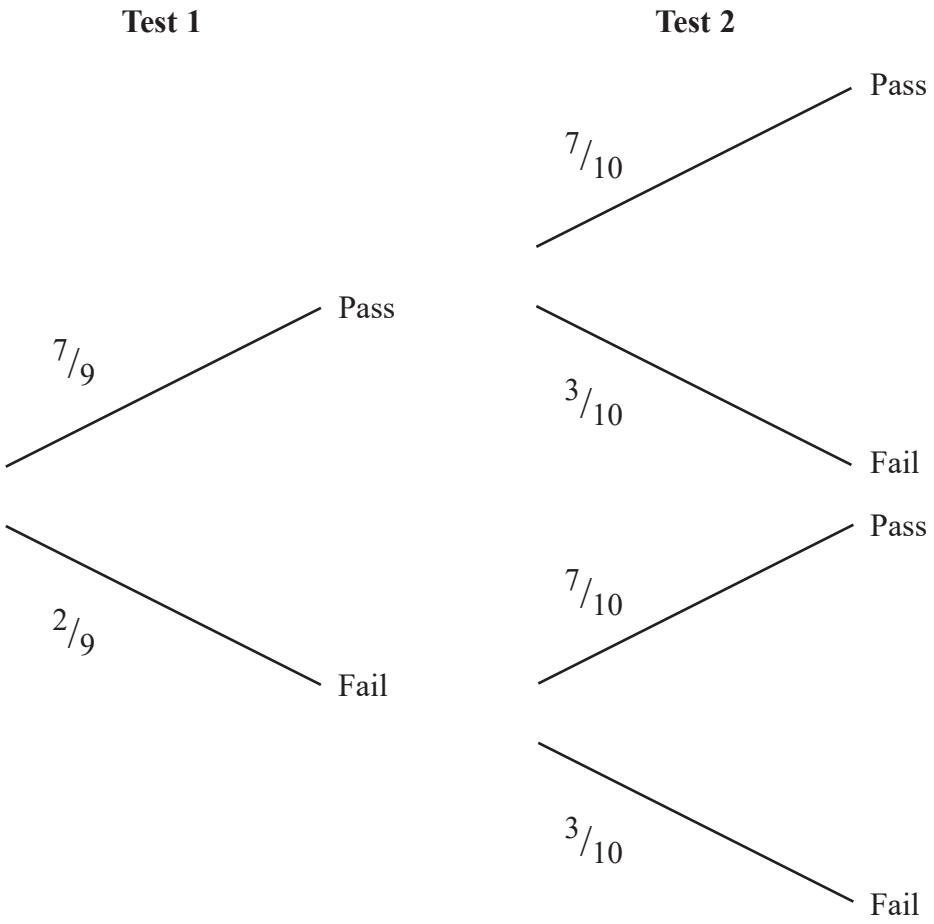
What is the probability that he has a red pen?

.....

(2)

All the students complete two tests.

The tree diagram below shows the probability that a student passes each of the tests.



(c) Work out the probability that a student passes exactly one of the two tests.

.....

(3)

(Total for Question 19 is 7 marks)

20 (a) The first term of a sequence is 11

The term-to-term rule is subtract 4

What is the fifth term of the sequence?

.....

(1)

(b) A different sequence has the n^{th} term $3n - 7$

Find the first four terms of this sequence.

....

(2)

(c) A boy writes a sequence with the n^{th} term $8n - 1$

His sister writes a sequence that begins 4, 13, 22, 31, ...

What is the first three-digit number that will be in both of their sequences?

.....

(3)

(Total for Question 20 is 6 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

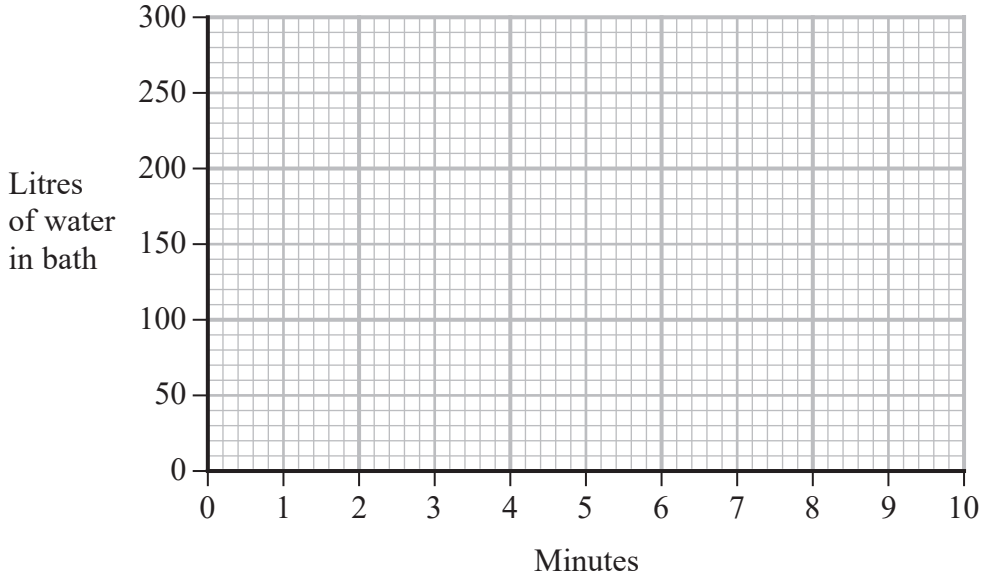
DO NOT WRITE IN THIS AREA

21 A bath contains 300 litres of water.

When the plug is pulled out it drains at a constant rate until it is empty.

It takes 8 minutes for the bath to empty completely.

Draw a graph on the axes below to illustrate this information.



(Total for Question 21 is 1 mark)

22 Express 210 as a product of its prime factors.

.....

(Total for Question 22 is 2 marks)

23 (a) Work out

$$2.39 \times 10^6 - 7.4 \times 10^5$$

.....

(1)

(b) Write the numbers below in order, starting with the smallest.

99 999 $\quad 8 \times 10^5 \quad$ 175 000 $\quad 5.2 \times 10^4$

....

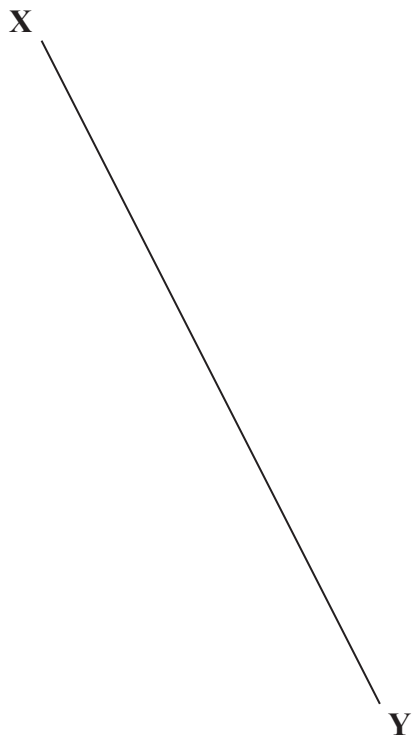
Smallest

(2)

(Total for Question 23 is 3 marks)

24 Use ruler and compasses to construct the perpendicular bisector of the line XY.

You must show all your construction lines.



(Total for Question 24 is 2 marks)

25 (a) The price of a ticket is $72

The price of the ticket increases by 14%

What will the price of the ticket be now?

$ .....

(2)

(b) A bus ticket costs $52

The cost of the ticket increases to $61.88

What was the percentage increase in the price of the ticket?

..... %

(2)

(c) A woman invests $2 700 at 3% per annum compound interest.

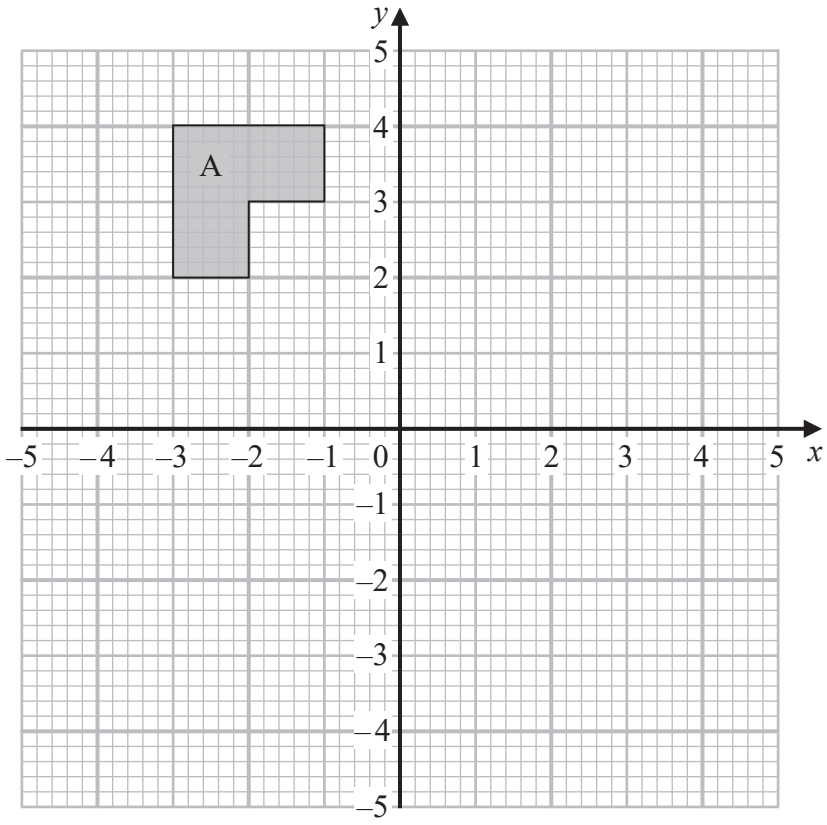
Calculate the value of the investment at the end of 4 years.

$ .....

(2)

(Total for Question 25 is 6 marks)

26



(a) Reflect shape A in the y-axis.
Label the new shape B.

(1)

(b) Reflect shape A in the line $y = 1$
Label the new shape C.

(1)

(c) Describe fully the single transformation that maps shape B onto shape C.

.....

.....

(2)

(Total for Question 26 is 4 marks)

27 (a) A man pours 2350 millilitres of water into a bucket.

His wife pours 1¾ litres of water into the same bucket.

The bucket will hold 4.9 litres of water in total.

How much more water is needed to fill the bucket?

.....

(2)

(b) The mass of the bucket when it is full of water is 5.75 kg to 2 decimal places.

What are the lower and upper bounds of this mass?

Lower bound = ... kg Upper bound = ... kg

(2)

(Total for Question 27 is 4 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

28 Quentin, Romesh and Samir have 150 golf balls in total.

Quentin has 15 more golf balls than Romesh.

Romesh has 24 more golf balls than Samir.

How many golf balls does Samir have?

.....

(Total for Question 28 is 3 marks)

29 (a) The number of visitors to an office each day is shown in the table below.

Visitors	0	1	2	3	4
Frequency	4	8	13	9	6

Calculate the mean number of visitors to the office per day.

.....

(3)

One of the staff in the office wants to know the best cinema in the area.

He stands outside one of the local cinemas and asks 8 people as they leave:

"What is your favourite cinema in this area?"

(b) Give two reasons why this is not a good way to collect data.

1 .....

.....

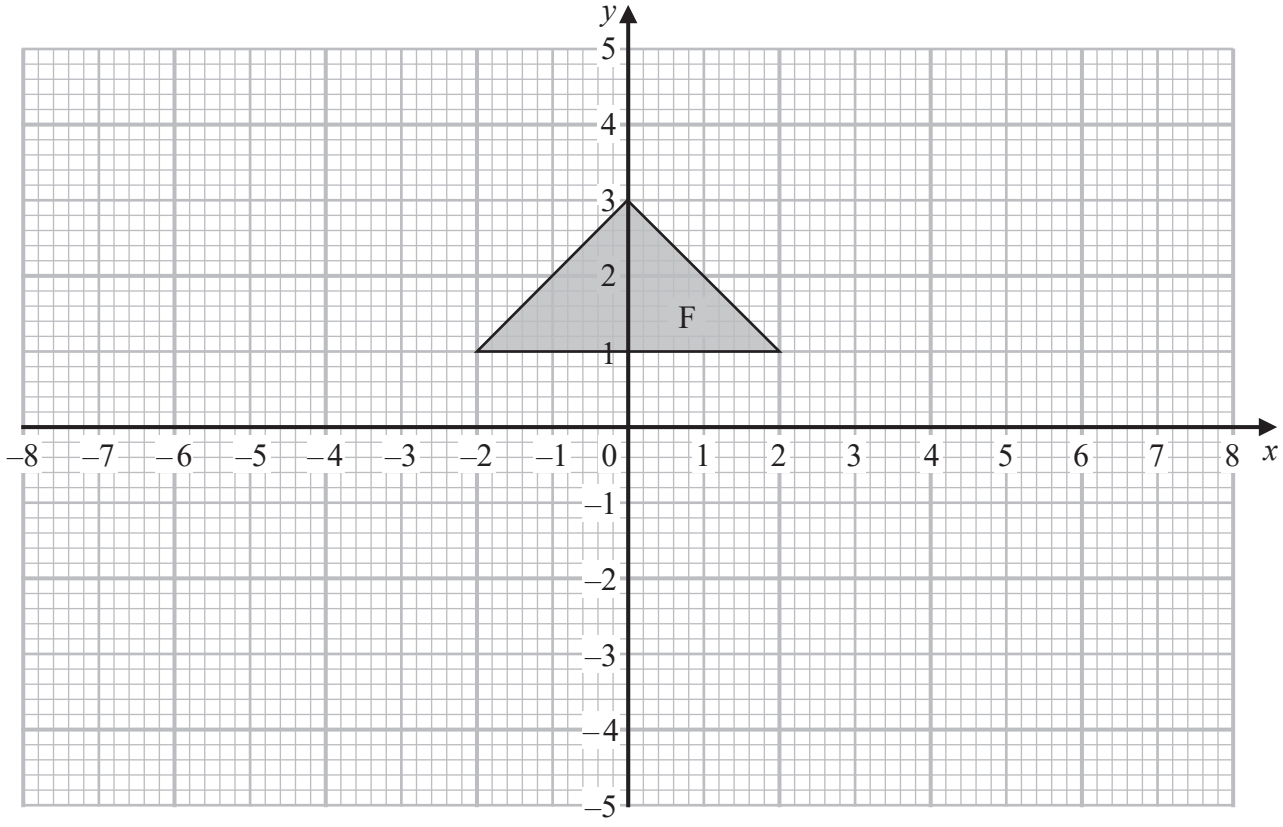
2 .....

.....

(2)

(Total for Question 29 is 5 marks)

30 On the grid below, enlarge shape F by a scale factor of $-\frac{1}{2}$ about the centre (4, 1)



(Total for Question 30 is 3 marks)

31 Triangles ABD and EBC are congruent.

The line AC is 17 cm long.

The line BC is 6 cm long.

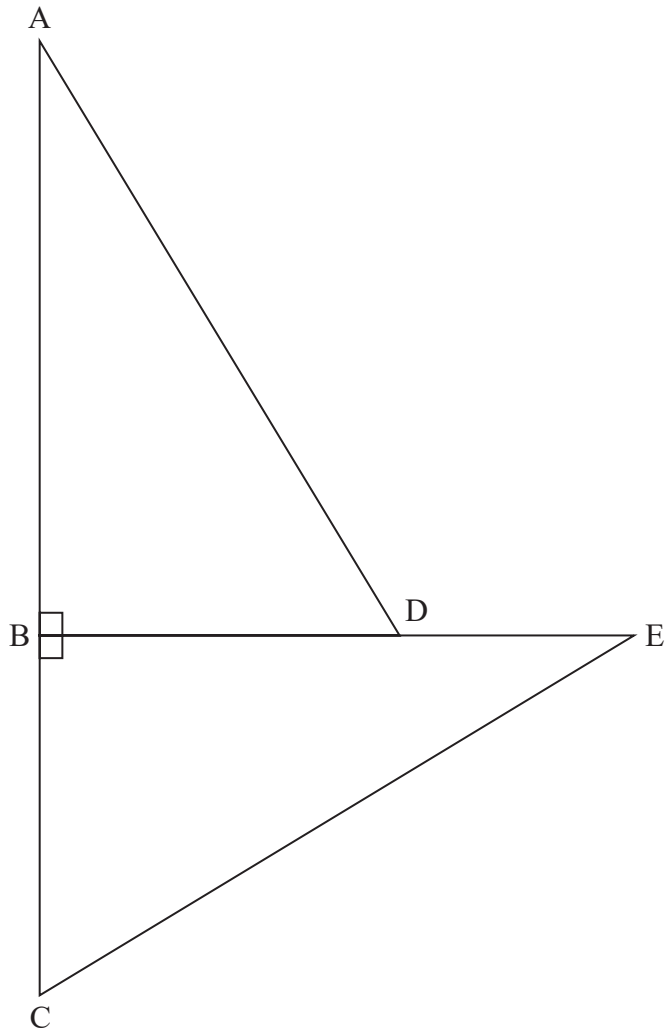


Diagram **NOT** drawn accurately

Calculate the length of the line DE.

..... cm

(Total for Question 31 is 3 marks)

32 JKL is a right-angled triangle.

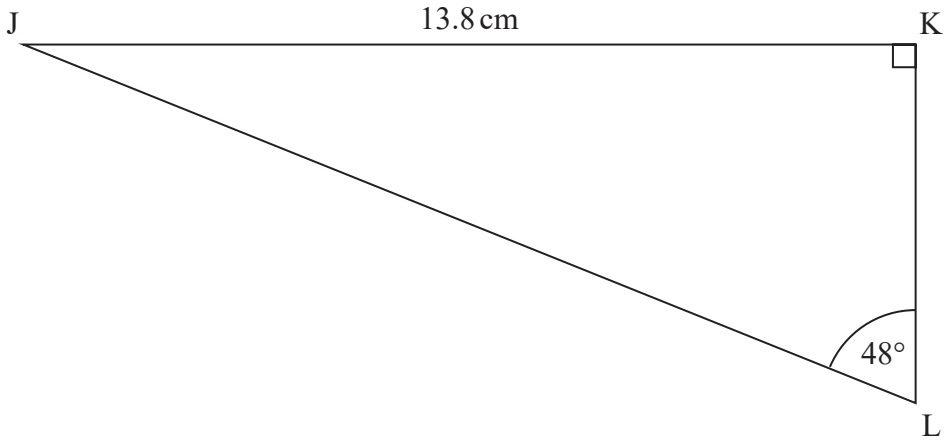


Diagram **NOT** drawn accurately

Work out the length of JL.

Give your answer correct to 3 significant figures.

..... cm

(Total for Question 32 is 3 marks)

33 8 cricket bats and 6 cricket balls have a total mass of 11.36 kg.

11 cricket bats and 4 cricket balls have a total mass of 14.94 kg.

Each of the cricket bats have the same mass.

Each of the cricket balls have the same mass.

What would be the total mass of 6 cricket bats and 6 cricket balls?

..... kg

(Total for Question 33 is 4 marks)

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