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:
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.

Turn over ▶

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P 6 7 6 2 7 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 Simplify

$$11b - 5c - 6b + 3c$$

$5b - 8c$	$5b - 2c$	$17b - 8c$	$17b - 2c$
☒	☒	☒	☒

(Total for Question 1 is 1 mark)

2 Which word is used to describe a 195° angle?

Acute	Obtuse	Reflex	Right
☒	☒	☒	☒

(Total for Question 2 is 1 mark)

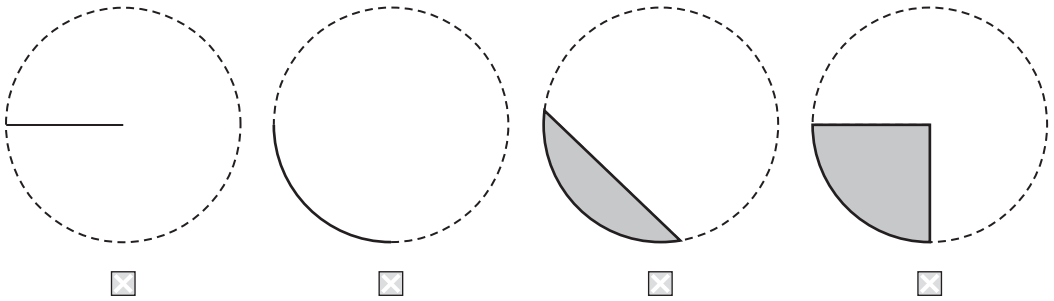
3 One letter is chosen at random from the word M A T H E M A T I C S

What is the probability that the letter chosen is a T?

$\frac{1}{8}$	$\frac{2}{9}$	$\frac{2}{11}$	$\frac{9}{11}$
☒	☒	☒	☒

(Total for Question 3 is 1 mark)

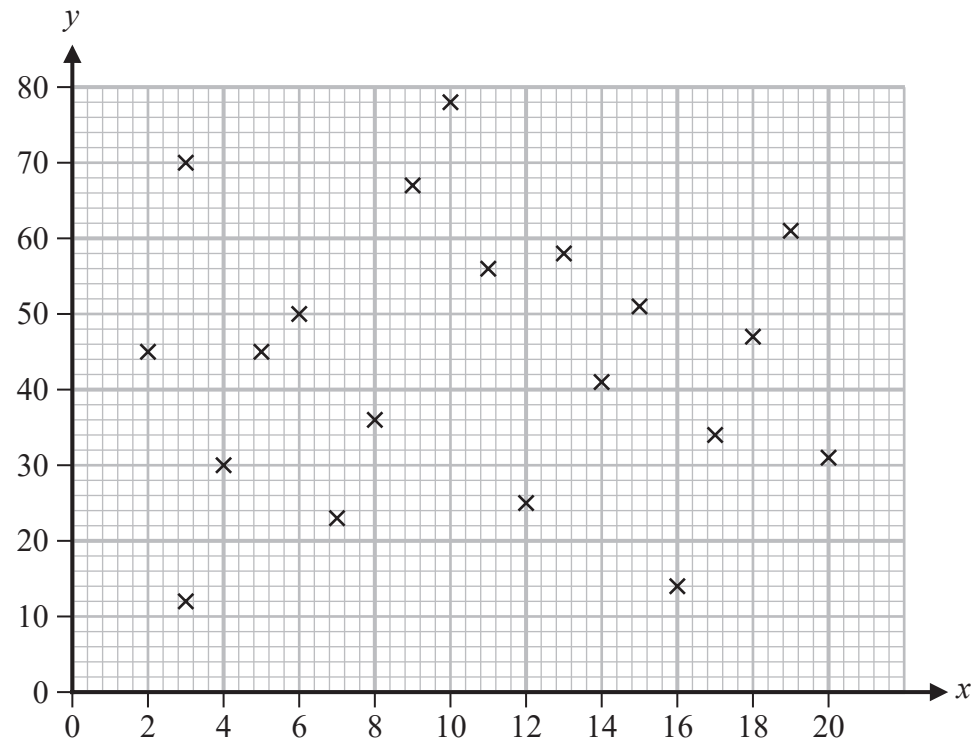
4 On which of these diagrams is a segment illustrated?



☒ ☒ ☒ ☒

(Total for Question 4 is 1 mark)

5 Which phrase describes the relationship illustrated on the scatter graph below?



Direct correlation ☒ Positive correlation ☒ Negative correlation ☒ No correlation ☒

(Total for Question 5 is 1 mark)

6 There are 30 students in a class.

Each student plays a game against their teacher which they either win, draw or lose.

Each student then takes a test that they can pass or fail.

Some information about the students is recorded in the two-way table below.

	Win	Draw	Lose	Total
Pass	8	5		**21**
Fail			4	
Total	**11**			**30**

How many students **draw** the game and **fail** the test?

2 ☒ 7 ☒ 9 ☒ 16 ☒

(Total for Question 6 is 1 mark)

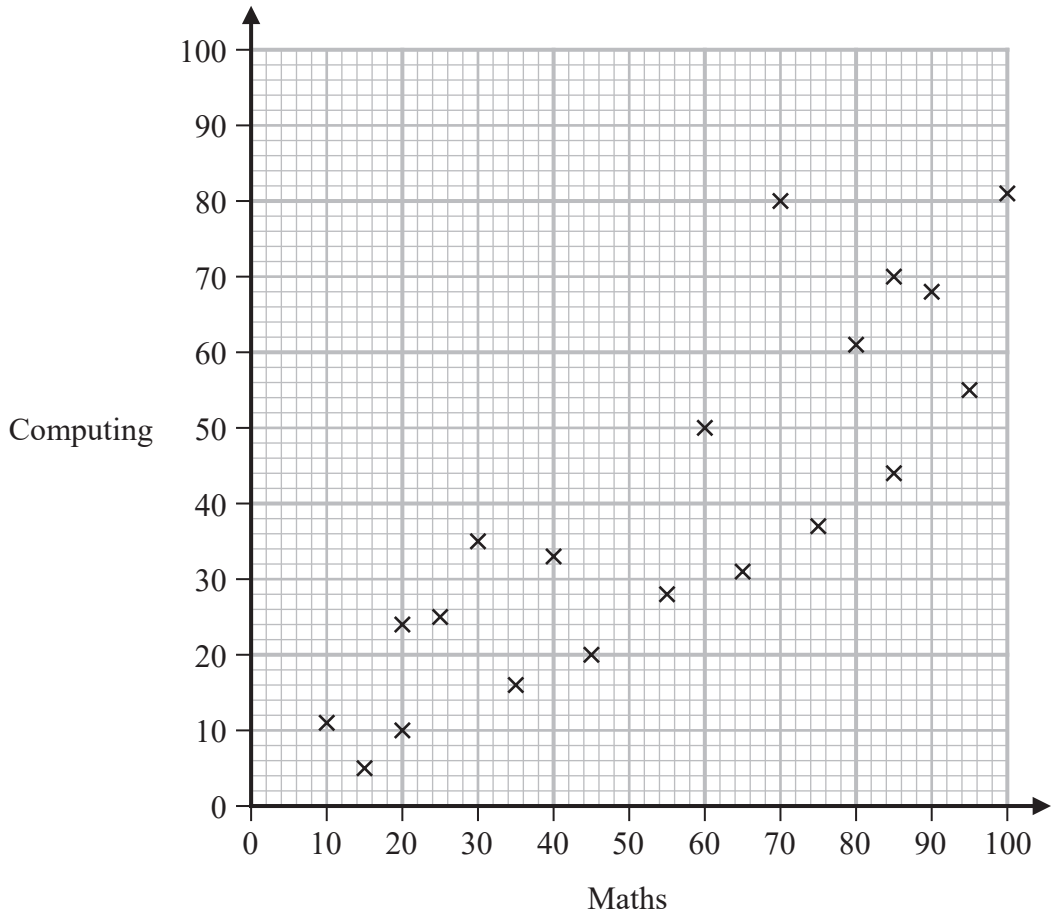
7 Round 8.279 to 2 decimal places.

8.2 ☒ 8.27 ☒ 8.28 ☒ 8.3 ☒

(Total for Question 7 is 1 mark)

8 A group of students each took a test in Maths and then a test in Computing.

Their scores from each of the tests are displayed on the scatter graph below.



Another student took the Maths test and scored 70 marks.

What mark would this student be predicted to get on the Computing test?

50 ☒ 80 ☒ 85 ☒ 100 ☒

(Total for Question 8 is 1 mark)

9 Write the following expression as a single power of 8

$$(8^6)^3$$

8^2 ☒ 8^3 ☒ 8^9 ☒ 8^{18} ☒

(Total for Question 9 is 1 mark)

10 If $a = 3$, $b = 1$ and $c = 5$, find the value of

$$(4a + 3b)^2 + ac^2$$

228 ☒ 300 ☒ 378 ☒ 450 ☒

(Total for Question 10 is 1 mark)

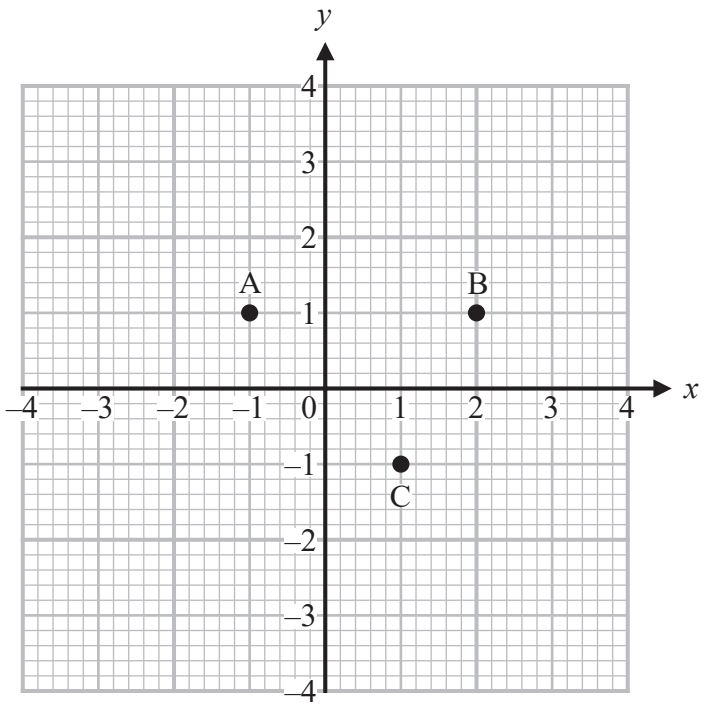
11 Work out

$$32 + 16 \div (8 - 4)$$

2 ☒ 12 ☒ 30 ☒ 36 ☒

(Total for Question 11 is 1 mark)

12 Shape ABCD is a parallelogram.



What could the coordinates of Point D be?

(–2, –1) ☒ (–1, 4) ☒ (1, 3) ☒ (3, 0) ☒

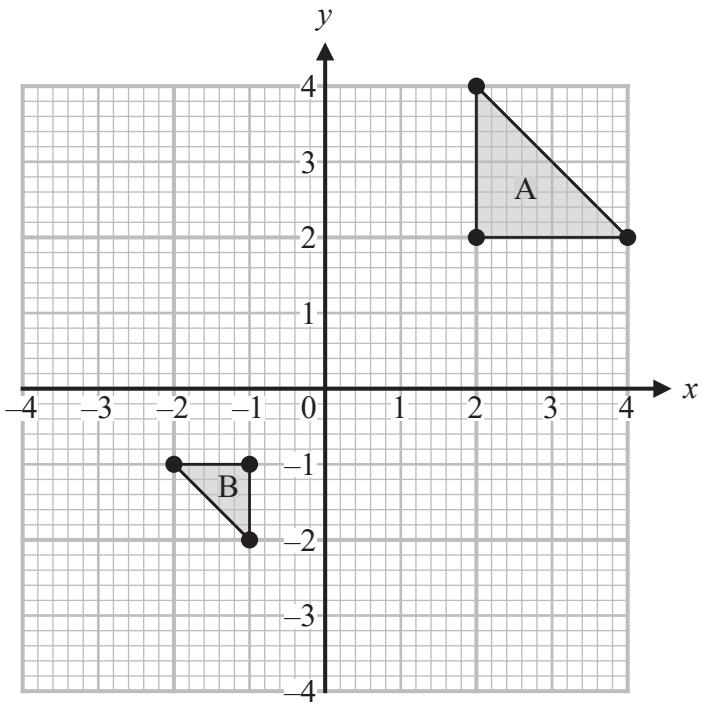
(Total for Question 12 is 1 mark)

13 Which fraction is equivalent to the recurring decimal 0.246246246…?

$\frac{246}{999}$ ☒ $\frac{246}{1000}$ ☒ $\frac{246\,246\,246}{999\,999\,999}$ ☒ $\frac{246\,246\,246}{1000\,000\,000}$ ☒

(Total for Question 13 is 1 mark)

14 Triangle A is enlarged to produce Triangle B.



What scale factor has Triangle A been enlarged by?

-2	$-\frac{1}{2}$	$\frac{1}{2}$	2
☒	☒	☒	☒

(Total for Question 14 is 1 mark)

15 The distance that an athlete runs is given as 9 km to the nearest metre.

What is the minimum distance that the athlete must have run?

8.5 km	8.95 km	8.995 km	8.9995 km
☒	☒	☒	☒

(Total for Question 15 is 1 mark)

TOTAL FOR SECTION A IS 15 MARKS

SECTION B

Answer ALL questions.

16 The distances that 7 pupils threw a shot-putt are recorded below, in metres.

9.44 10.44 7.22 10.91 8.69 17.78 10.91

(a) What is the mode of these distances?

..... m

(1)

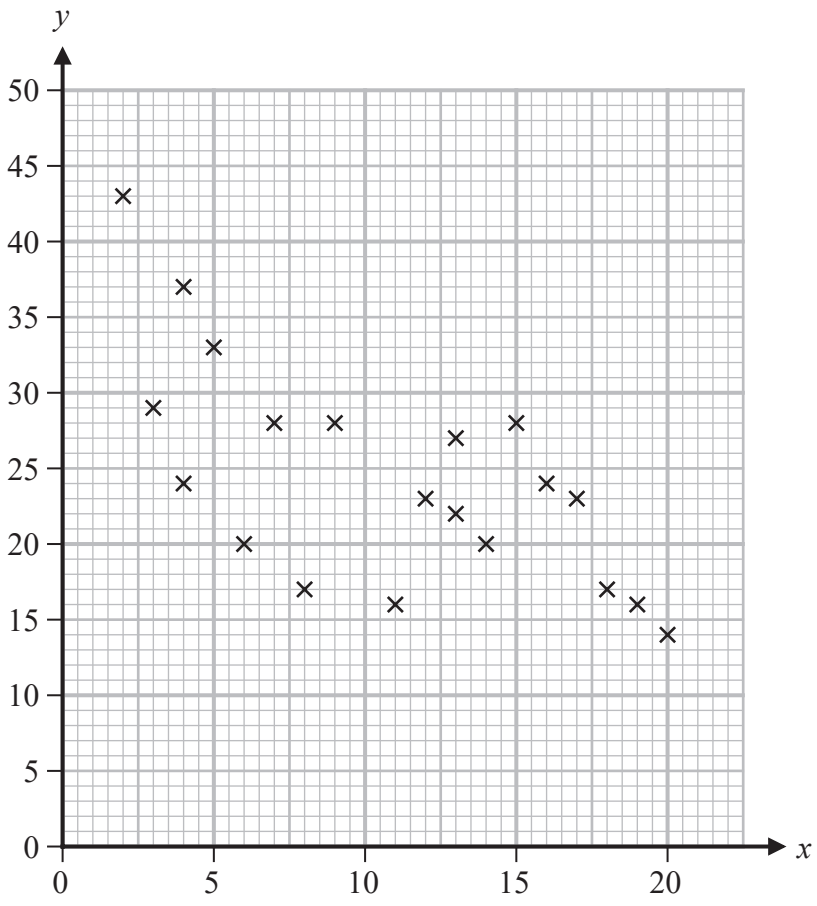
(b) What is the mean of these distances?

..... m

(2)

(Total for Question 16 is 3 marks)

17 Draw a line of best fit on the scatter graph below.



(Total for Question 17 is 1 mark)

18 Point E has coordinates (–6, 11).

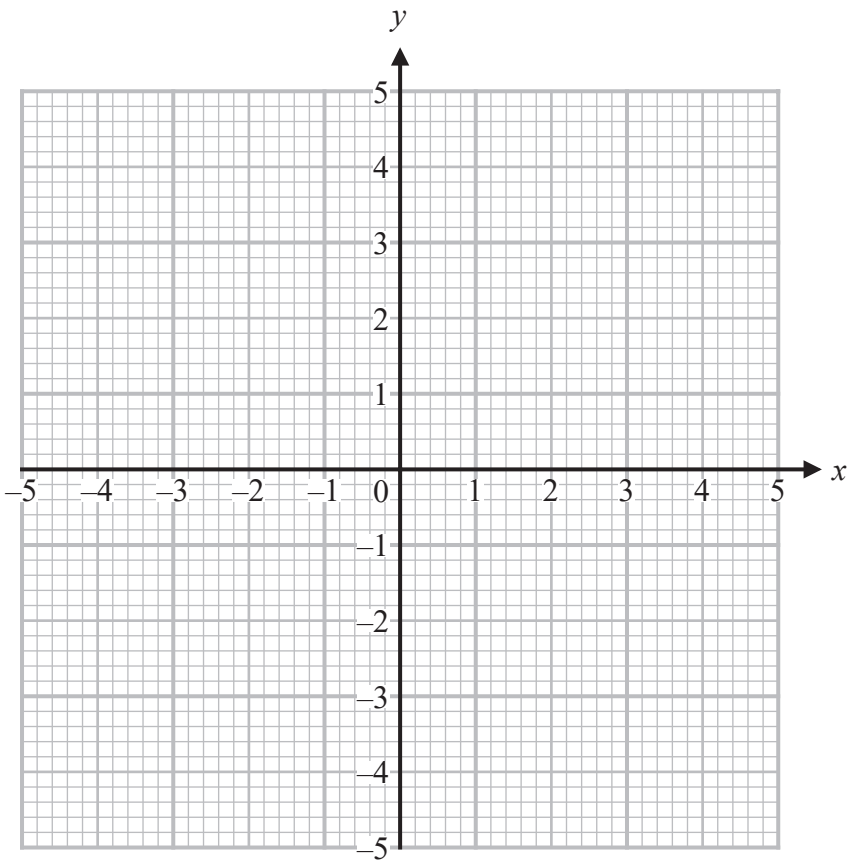
Point F has coordinates (14, –9).

(a) Find the coordinates of the midpoint of the line EF.

.....

(2)

(b) On the grid below, draw the line $x = -4$



(1)

(Total for Question 18 is 3 marks)

19 (a) Write these in order, starting with the smallest.

47% 0.444 $\frac{9}{20}$

Show your working clearly.

....

Smallest Largest

(3)

(b) The price of a mobile phone increases by 15%.

The price of the mobile phone after the increase is \$391

What was the price of the mobile phone before the increase?

\$ .....

(3)

(c) Two shops, *Bargains* and *Sale-Buster*, both sell the same skateboard.

In *Bargains*, the price of the skateboard was \$74 but has now been reduced by 7%.

In *Sale-Buster*, the price of the skateboard was \$78 but has now been reduced by 12%.

Which of the shops would now sell the skateboard at the lower price?

You must show your working.

.....

(3)

(Total for Question 19 is 9 marks)

20 (a) An athlete completes a 48 km triathlon by cycling, swimming and running.

The distances that she cycles, swims and runs are in the ratio 25 : 1 : 6

How far does the athlete cycle, swim and run?

Cycle = ... km

Swim = ... km

Run = ... km

(2)

(b) The athlete completed the 48 km triathlon in exactly 5 hours.

What was her average speed?

..... km/h

(2)

(Total for Question 20 is 4 marks)

---

21 (a) Write 200 as a product of its prime factors.

.....

(2)

(b) Find the highest common factor of 32 and 80

.....

(2)

(Total for Question 21 is 4 marks)

---

22 (a) Expand and simplify

$$20w - 3w\,(4w + 5)$$

.....

(2)

(b) Solve the equation

$$\frac{7x - 11}{5} = 9$$

$x =$ .....

(2)

(c) Solve the inequality

$$9y - 11 < 5y + 10$$

.....

(2)

(Total for Question 22 is 6 marks)

23 A plastic semicircle is cut in half to form the shape below.

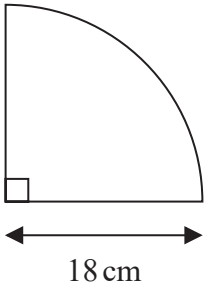


Diagram **NOT** accurately drawn

What is the perimeter of this shape?
Give your answer correct to 1 decimal place.

..... cm

(Total for Question 23 is 2 marks)

24 Find the size of the angle marked z in the pentagon below.

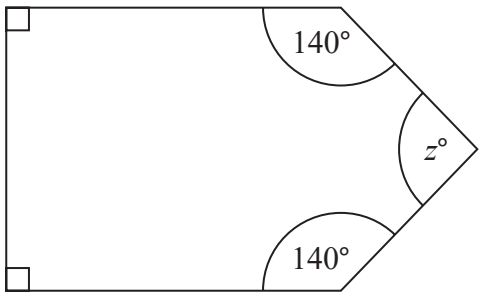


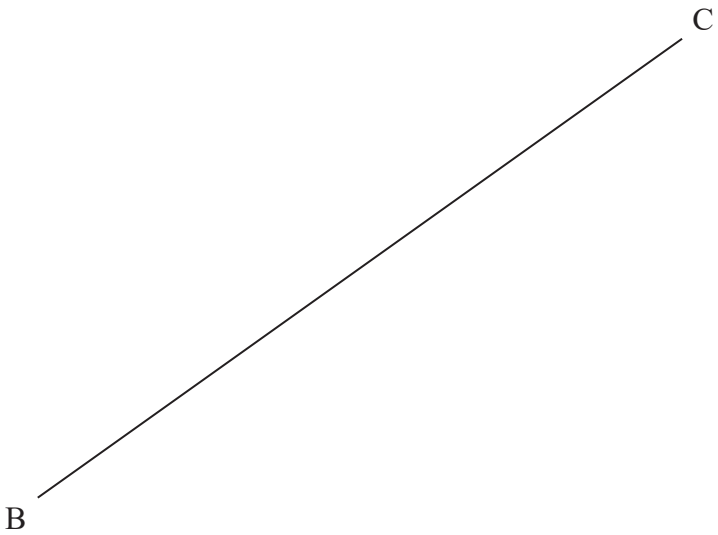
Diagram **NOT** accurately drawn

..... °

(Total for Question 24 is 2 marks)

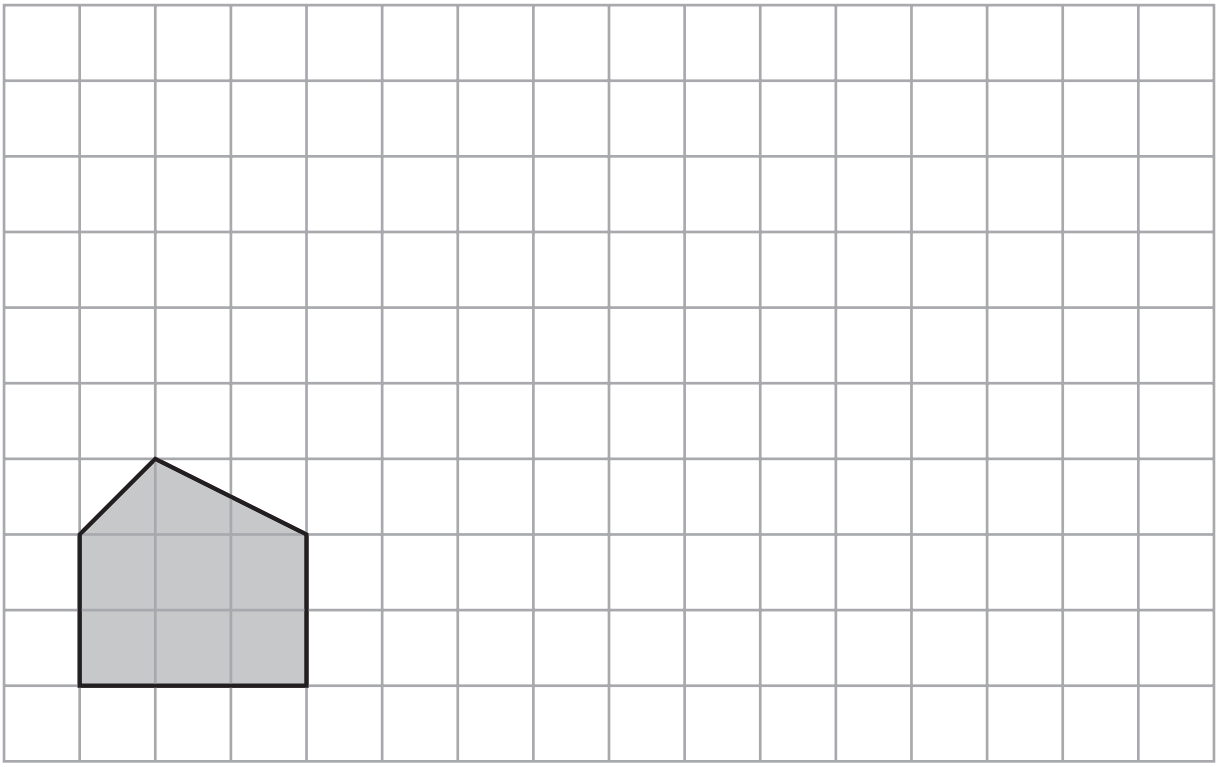
25 Use ruler and compasses to construct a perpendicular bisector of the line BC.

You must show all your construction lines.



(Total for Question 25 is 2 marks)

26 Enlarge the shaded shape on the grid below by a scale factor of 2



(Total for Question 26 is 2 marks)

27 Find the n^{th} term of the sequence

27, 23, 19, 15, 11, …

.....

(Total for Question 27 is 2 marks)

28 Make k the subject of the formula

$$t = \sqrt{\frac{k}{5c}}$$

.....

(Total for Question 28 is 2 marks)

29 A doctor is 21 years older than his daughter.

The doctor is also 38 years younger than his father.

The ages of the doctor, his daughter and his father add up to 158

How old is the doctor?

.....

(Total for Question 29 is 2 marks)

30 Work out $3.1 \times 10^3 + 2.4 \times 10^4$

Give your answer in standard form.

.....

(Total for Question 30 is 2 marks)

31 The heights, h, of 40 students are recorded in the grouped frequency table below.

Height, h, in cm	Frequency
$150 \leqslant h < 160$	17
$160 \leqslant h < 170$	11
$170 \leqslant h < 180$	10
$180 \leqslant h < 190$	2
Total	**40**

Calculate an estimate of the mean height of the students.

..... cm

(Total for Question 31 is 3 marks)

32 The mean age of 17 golfers is 52

The mean age of 9 of the golfers is 74

What is the mean age of the other 8 golfers?

.....

(Total for Question 32 is 3 marks)

33 The quadrilateral PQRS below is made from two right angled triangles.

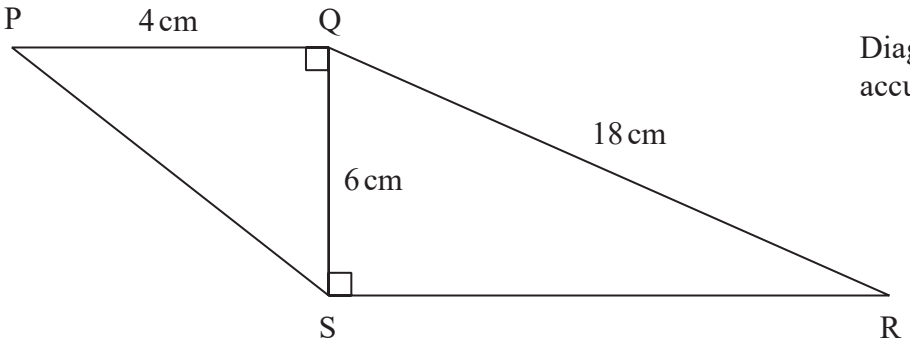


Diagram **NOT** accurately drawn

(a) Calculate the length of the side PS.

..... cm

(2)

(b) Calculate the length of the side RS.

..... cm

(2)

(Total for Question 33 is 4 marks)

34 Two teachers visit the same cafe to buy some cakes and some drinks.

All cakes are the same price.
All drinks are the same price.

One teacher buys 3 cakes and 2 drinks for $7.90

The other teacher buys 5 cakes and 4 drinks for $14.30

Work out the cost of one cake and the cost of one drink.

Cake = $ .....

Drink = $ .....

(Total for Question 34 is 4 marks)

35 Calculate the size of the angle marked b on the diagram below.

You must show your working.
Give your answer correct to 1 decimal place.

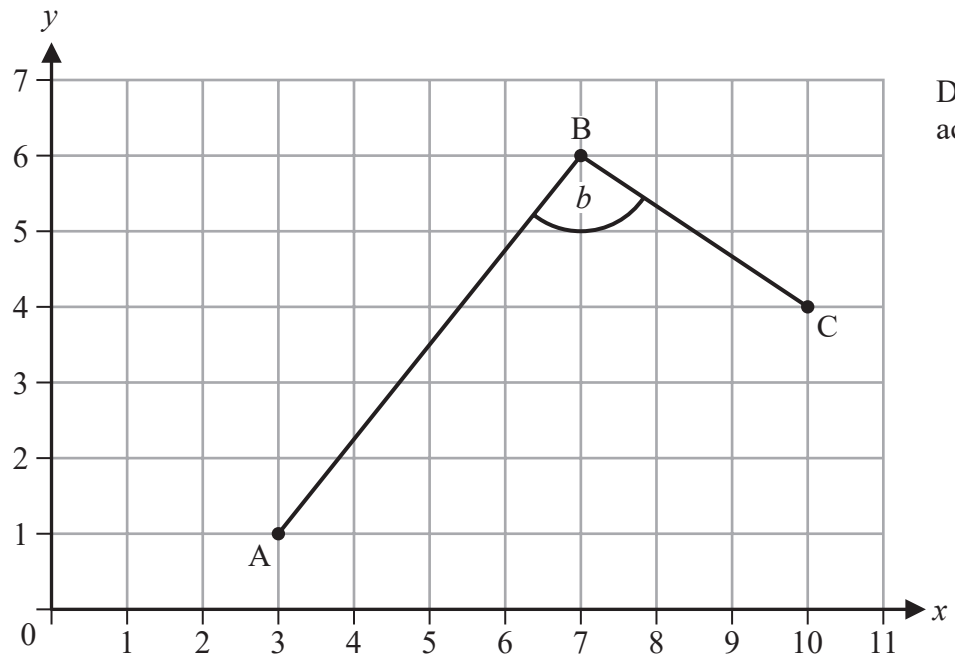


Diagram **NOT** accurately drawn

.....°

(Total for Question 35 is 5 marks)

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

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