

Write your name here			
Surname	Other names		
Pearson Edexcel	Centre Number	Candidate Number	
Level 1/Level 2 GCSE (9 - 1)	<div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black; margin: 2px;"></div> <div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black; margin: 2px;"></div> <div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black; margin: 2px;"></div> <div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black; margin: 2px;"></div> <div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black; margin: 2px;"></div>	<div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black; margin: 2px;"></div> <div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black; margin: 2px;"></div> <div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black; margin: 2px;"></div> <div style="display: inline-block; width: 20px; height: 20px; border: 1px solid black; margin: 2px;"></div>	
<h1 style="margin: 0;">Mathematics</h1> <h2 style="margin: 0;">Paper 2 (Calculator)</h2>			
Specimen Papers Set 1		Paper Reference	
Time: 1 hour 30 minutes		1MA1/2H	
You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator.			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.**
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out.**



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.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ►

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Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1** Make t the subject of the formula $w = 3t + 11$

(Total for Question 1 is 2 marks)

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- 2 Three companies sell the same type of furniture.

The price of the furniture from Pooles of London is £1480

The price of the furniture from Jardins of Paris is €1980

The price of the furniture from Outways of New York is \$2250

The exchange rates are

$$£1 = €1.34$$

$$£1 = \$1.52$$

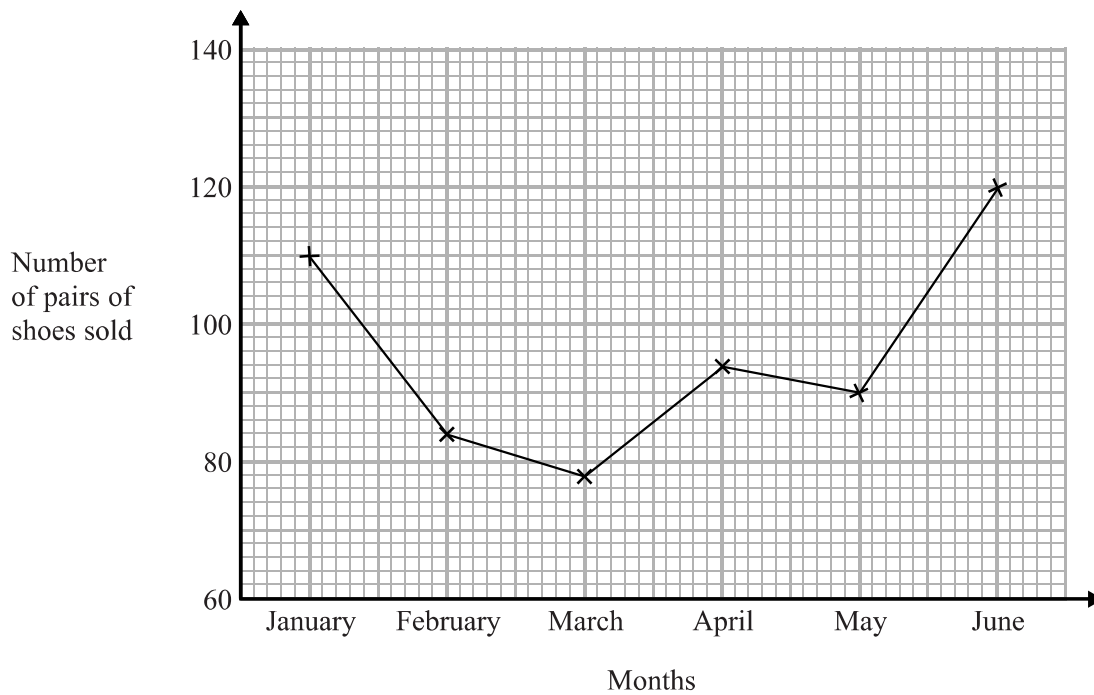
Which company sells this furniture at the lowest price?

You must show how you get your answer.

(Total for Question 2 is 3 marks)



- 3 The time-series graph gives some information about the number of pairs of shoes sold in a shoe shop in the first six months of 2014



The sales target for the first six months of 2014 was to sell a mean of 96 pairs of shoes per month.

Did the shoe shop meet this sales target?
You must show how you get your answer.

(Total for Question 3 is 3 marks)



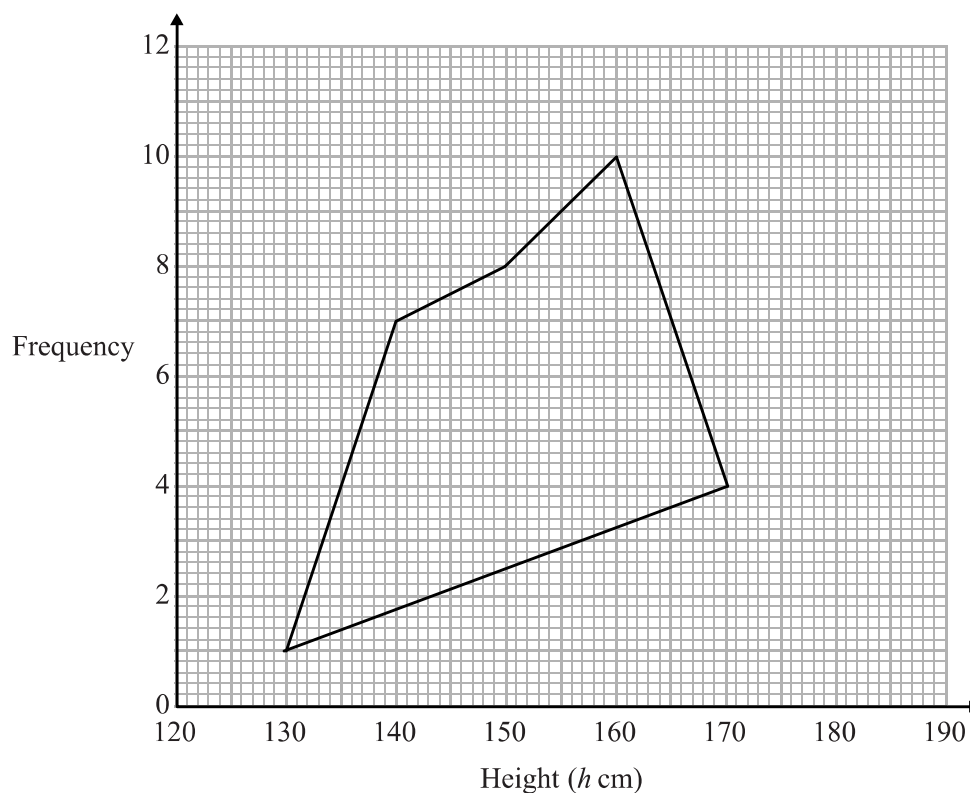
- 4 The grouped frequency table gives information about the heights of 30 students.

Height (h cm)	Frequency
$130 < h \leq 140$	1
$140 < h \leq 150$	7
$150 < h \leq 160$	8
$160 < h \leq 170$	10
$170 < h \leq 180$	4

- (a) Write down the modal class interval.

.....
(1)

This incorrect frequency polygon has been drawn for the information in the table.



- (b) Write down two things wrong with this incorrect frequency polygon.

1

2

(2)

(Total for Question 4 is 3 marks)



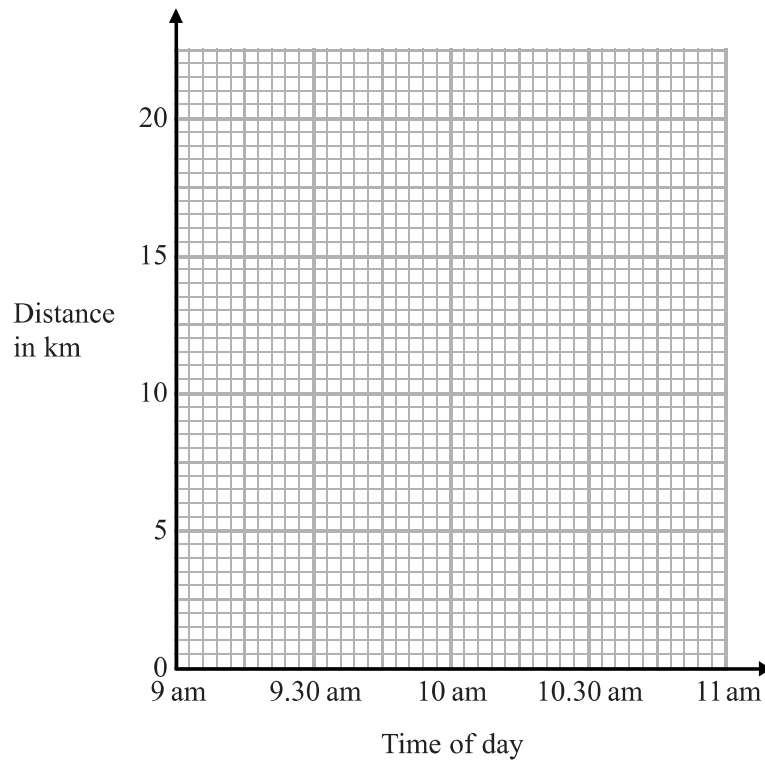
S 4 9 8 1 8 A 0 5 2 4

- 5 At 9 am, Bradley began a journey on his bicycle.

From 9 am to 9.36 am, he cycled at an average speed of 15 km/h.

From 9.36 am to 10.45 am, he cycled a further 8 km.

- (a) Draw a travel graph to show Bradley's journey.



(3)

From 10.45 am to 11 am, Bradley cycled at an average speed of 18 km/h.

- (b) Work out the distance Bradley cycled from 10.45 am to 11 am.

..... km

(2)

(Total for Question 5 is 5 marks)



- 6 Toby invested £7500 for 2 years in a savings account.
He was paid 4% per annum compound interest.

How much money did Toby have in his savings account at the end of 2 years?

£

(Total for Question 6 is 2 marks)

- 7 Becky has some marbles.
Chris has two times as many marbles as Becky.
Dan has seven more marbles than Chris.

They have a total of 57 marbles.

Dan says,

“If I give some marbles to Becky, each of us will have the same number of marbles.”

Is Dan correct?

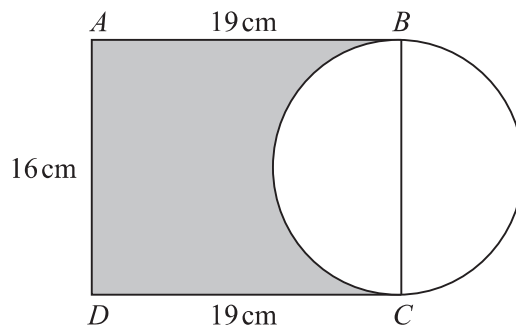
You must show how you get your answer.

(Total for Question 7 is 3 marks)



S 4 9 8 1 8 A 0 7 2 4

- 8 Here is a diagram showing a rectangle, $ABCD$, and a circle.



BC is a diameter of the circle.

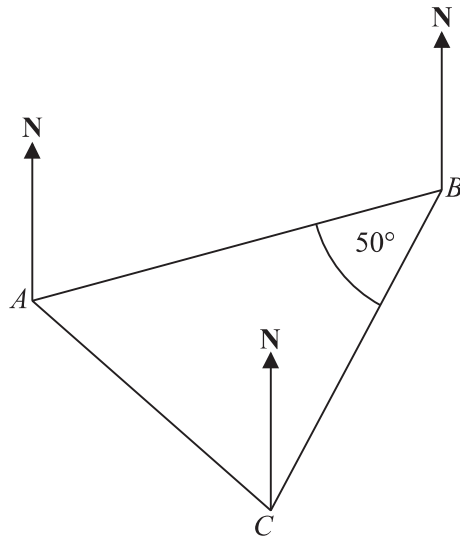
Calculate the percentage of the area of the rectangle that is shaded.
Give your answer correct to 1 decimal place.

..... %

(Total for Question 8 is 4 marks)



- 9 The diagram shows the positions of three points, A , B and C , on a map.



The bearing of B from A is 070°

Angle ABC is 50°

$AB = CB$

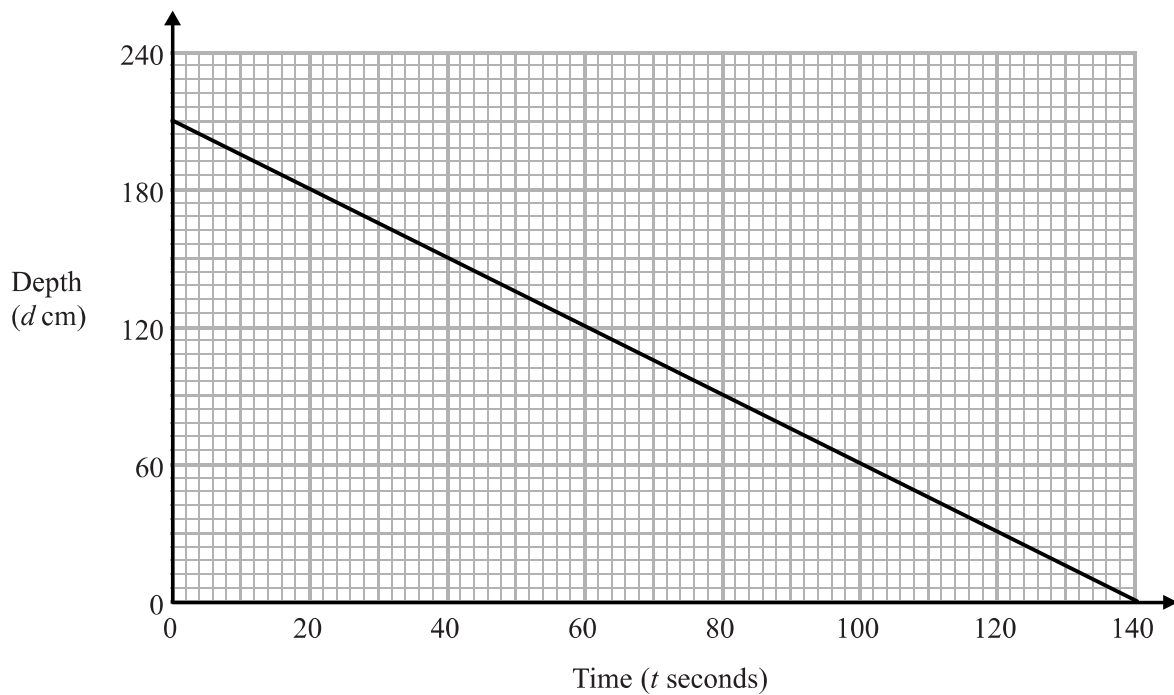
Work out the bearing of C from A .

(Total for Question 9 is 3 marks)



S 4 9 8 1 8 A 0 9 2 4

10 The graph shows the depth, d cm, of water in a tank after t seconds.



(a) Find the gradient of this graph.

(2)

(b) Explain what this gradient represents.

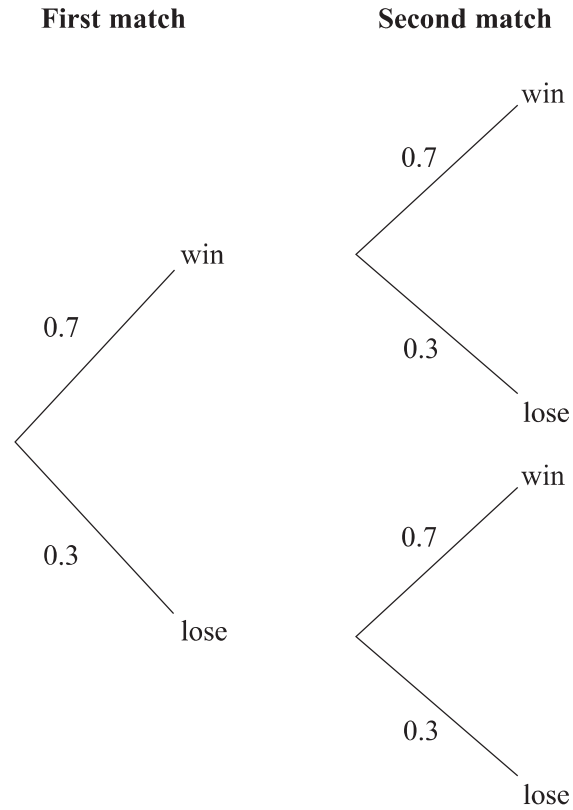
(1)

(Total for Question 10 is 3 marks)



11 Finlay plays two tennis matches.

The probability that he will win a match and the probability that he will lose a match are shown in the probability tree diagram.



- (a) Work out the probability that Finlay wins both matches.

.....
(2)

- (b) Work out the probability that Finlay loses at least one match.

.....
(2)

(Total for Question 11 is 4 marks)



S 4 9 8 1 8 A 0 1 1 2 4

12 (a) Find the reciprocal of 2.5

(1)

(b) Work out $\sqrt[3]{\frac{4.3 \times \tan 39^\circ}{23.4 - 6.06}}$

Give your answer correct to 3 significant figures.

(2)

(Total for Question 12 is 3 marks)

13 Show that

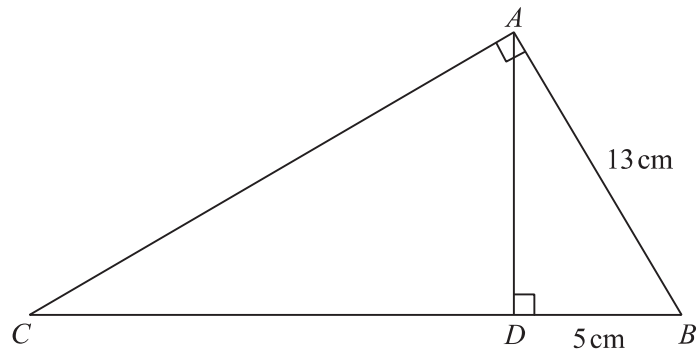
$$(3x - 1)(x + 5)(4x - 3) = 12x^3 + 47x^2 - 62x + 15$$

for all values of x .

(Total of Question 13 is 3 marks)



14 ABC and ABD are two right-angled triangles.



Angle $BAC = \text{angle } ADB = 90^\circ$

$AB = 13 \text{ cm}$

$DB = 5 \text{ cm}$

Work out the length of CB .

..... cm

(Total for Question 14 is 3 marks)



S 4 9 8 1 8 A 0 1 3 2 4

- 15 A pendulum of length L cm has time period T seconds.
 T is directly proportional to the square root of L .

The length of the pendulum is increased by 40%.

Work out the percentage increase in the time period.

.....%

(Total for Question 15 is 3 marks)

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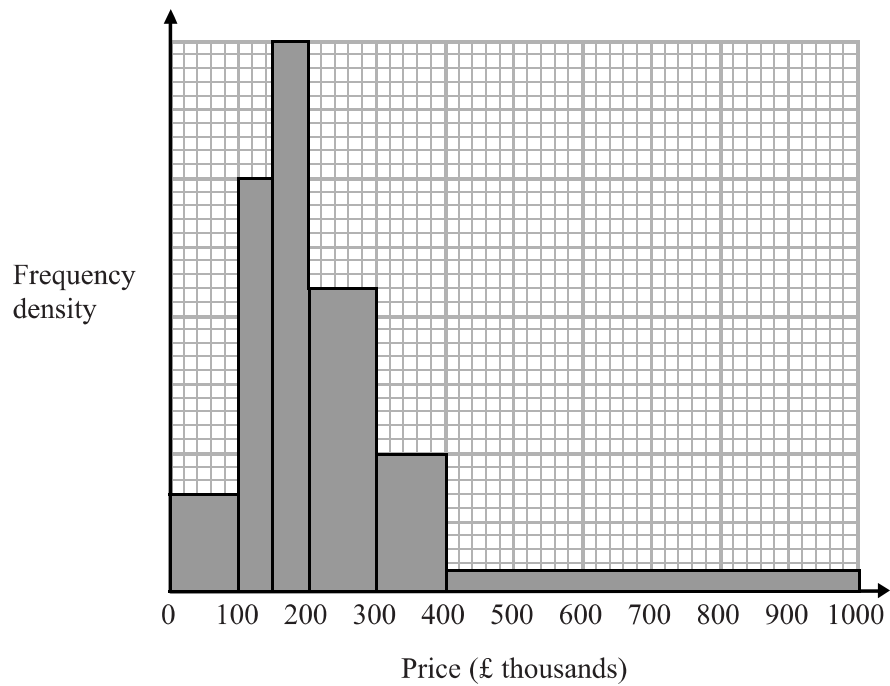
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16 The histogram gives information about house prices in a village in 2015



20 houses in the village have a price between £300 000 and £400 000

Work out the number of houses in the village with a price under £200 000

(Total for Question 16 is 3 marks)



S 4 9 8 1 8 A 0 1 5 2 4

17 Here are the first 5 terms of a quadratic sequence.

1 3 7 13 21

Find an expression, in terms of n , for the n th term of this quadratic sequence.

(Total for Question 17 is 3 marks)

18 $f(x) = 3x^2 - 2x - 8$

Express $f(x + 2)$ in the form $ax^2 + bx$

(Total for Question 18 is 3 marks)

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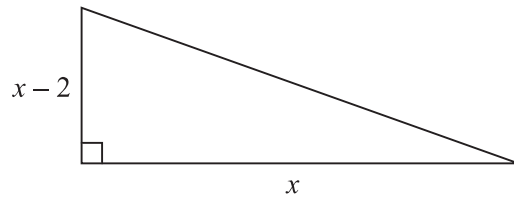
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19 Here is a right-angled triangle.



All measurements are in centimetres.

The area of the triangle is 2.5 cm^2 .

Find the perimeter of the triangle.

Give your answer correct to 3 significant figures.

You must show all of your working.

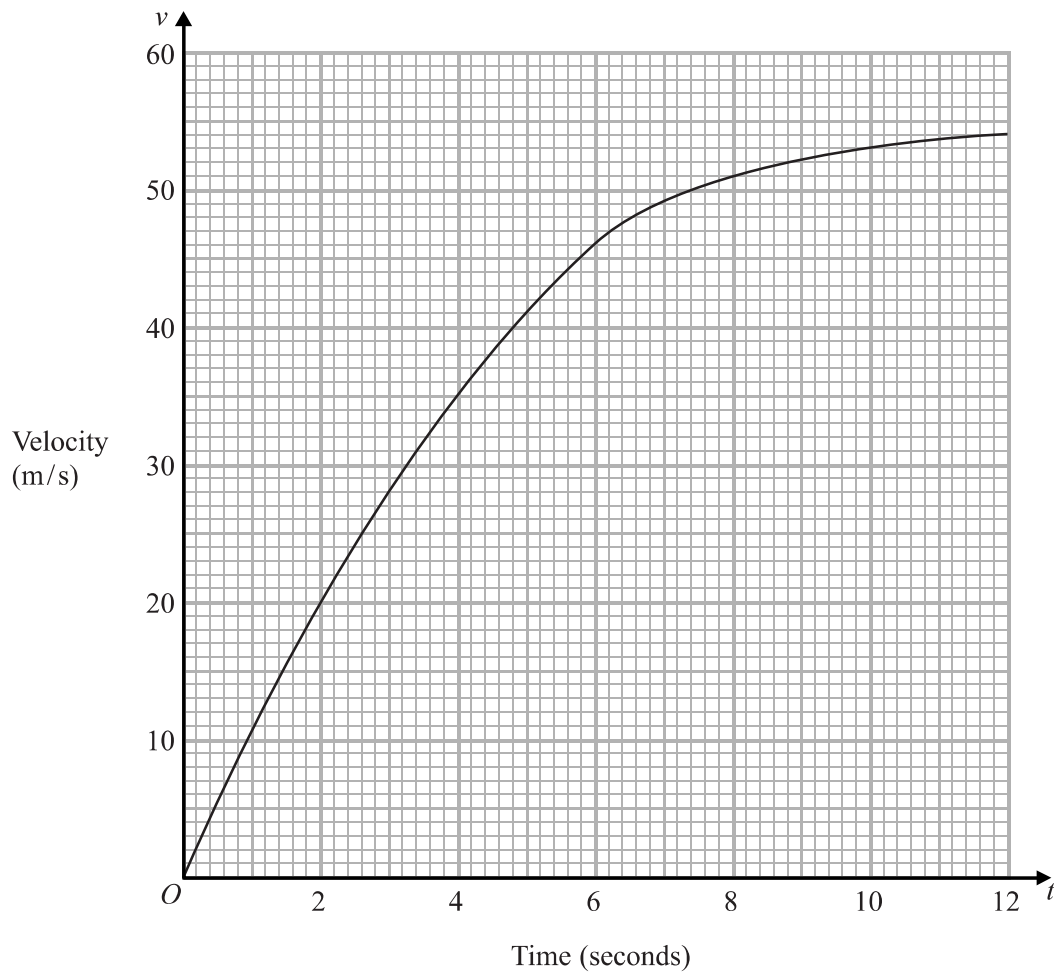
..... cm

(Total for Question 19 is 6 marks)



S 4 9 8 1 8 A 0 1 7 2 4

- 20 The graph shows information about the velocity, v m/s, of a parachutist t seconds after leaving a plane.



- (a) Work out an estimate for the acceleration of the parachutist at $t = 6$

..... m/s²

(2)

- (b) Work out an estimate for the distance fallen by the parachutist in the first 12 seconds after leaving the plane.
Use 3 strips of equal width.

..... m

(3)

(Total for Question 20 is 5 marks)



- 21 The number of bees in a beehive at the start of year n is P_n .
The number of bees in the beehive at the start of the following year is given by

$$P_{n+1} = 1.05(P_n - 250)$$

At the start of 2015 there were 9500 bees in the beehive.

How many bees will there be in the beehive at the start of 2018?

(Total for Question 21 is 3 marks)



S 4 9 8 1 8 A 0 1 9 2 4

22 $D = \frac{x}{y}$

$x = 99.7$ correct to 1 decimal place.

$y = 67$ correct to 2 significant figures.

Work out an upper bound for D .

(Total for Question 22 is 3 marks)

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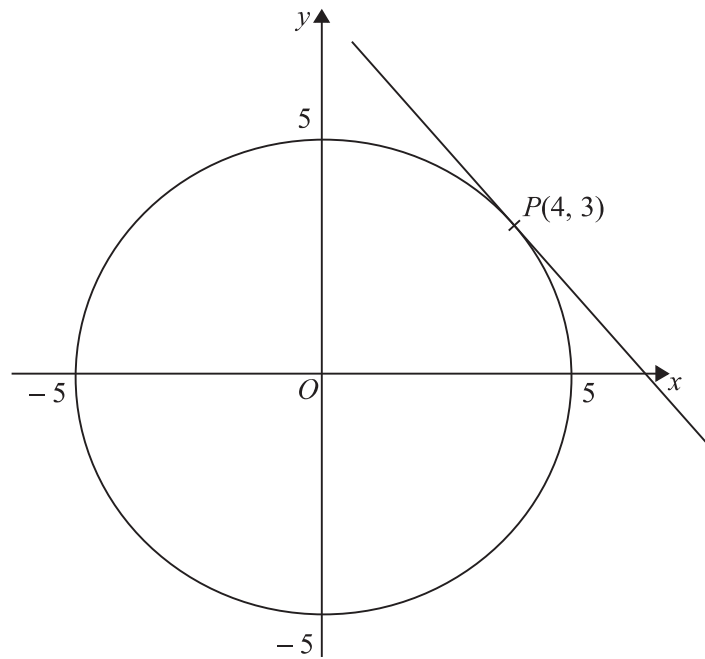
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23 Here is a circle, centre O , and the tangent to the circle at the point $P(4, 3)$ on the circle.

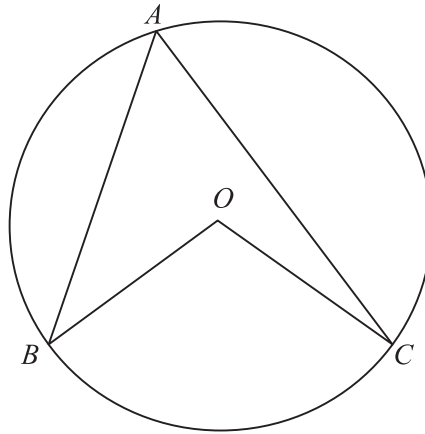


Find an equation of the tangent at the point P .

(Total for Question 23 is 3 marks)



24 A , B and C are points on the circumference of a circle centre O .



Prove that angle BOC is twice the size of angle BAC .

(Total for Question 24 is 4 marks)

TOTAL FOR PAPER IS 80 MARKS



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