

GCSE Grade 7

Maths

Booklet 5

Paper 2H
Calculator

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- 1 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 1 is 3 marks)

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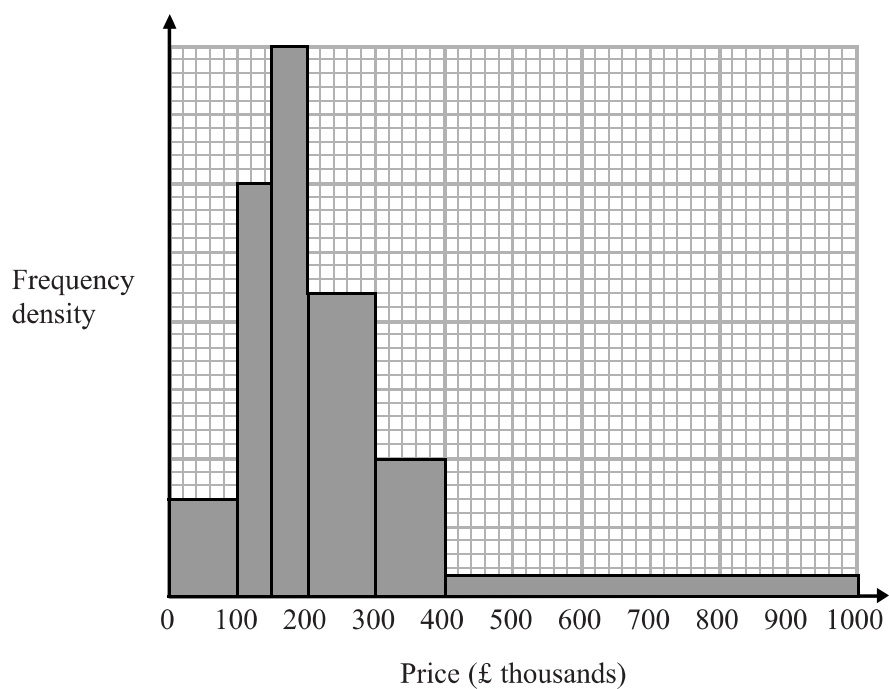
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2 The histogram gives information about house prices in a village in 2015



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 2 is 3 marks)



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

- 3 d is inversely proportional to c

When $c = 280$, $d = 25$

Find the value of d when $c = 350$

$d = \dots\dots\dots$

(Total for Question 3 is 3 marks)

- 4 Prove algebraically that

$(2n + 1)^2 - (2n + 1)$ is an even number

for all positive integer values of n .

(Total for Question 4 is 3 marks)

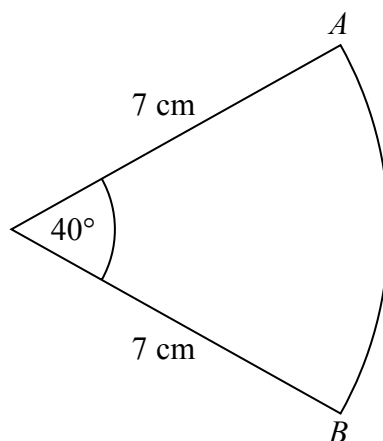
- 5 Prove algebraically that the recurring decimal $0.2\dot{5}$ has the value $\frac{23}{90}$

(Total for Question 5 is 2 marks)

- 6 Show that $\frac{1}{6x^2 + 7x - 5} \div \frac{1}{4x^2 - 1}$ simplifies to $\frac{ax + b}{cx + d}$ where a, b, c and d are integers.

(Total for Question 6 is 3 marks)

7 The diagram shows a sector of a circle of radius 7 cm.

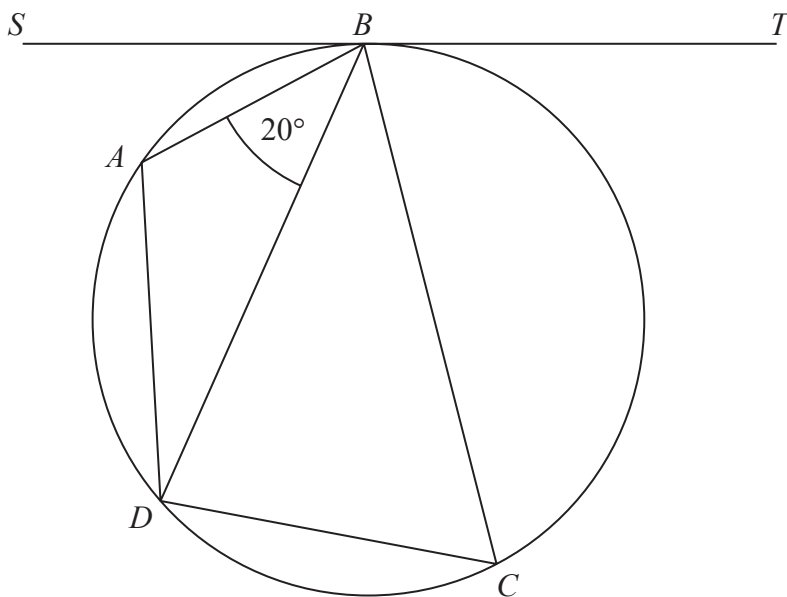


Work out the length of arc AB .

Give your answer correct to 3 significant figures.

..... cm

(Total for Question 7 is 2 marks)



A , B , C and D are four points on a circle.

SBT is a tangent to the circle.

Angle $ABD = 20^\circ$

the size of angle BAD : the size of angle $BCD = 3 : 1$

Find the size of angle SBA .

Give a reason for each stage of your working.

(Total for Question 8 is 4 marks)

