

Hundred Starter Tuesday 29th September

25.

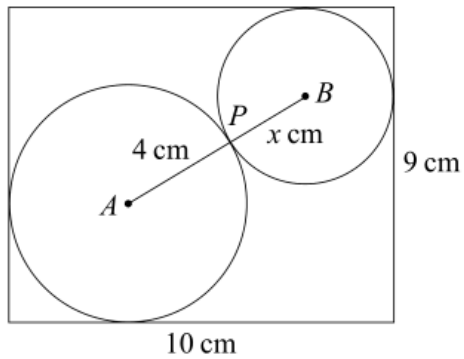


Diagram **NOT**
accurately drawn

The diagram shows one disc with centre A and radius 4 cm and another disc with centre B and radius x cm.

The two discs fit exactly into a rectangular box 10 cm long and 9 cm wide.

The two discs touch at P .

APB is a straight line.

(a) Use Pythagoras' Theorem to show that $x^2 - 30x + 45 = 0$

(b) Find the value of x .

Give your value correct to 3 significant figures.

May 2007 4H

18. A fair, 6-sided dice has faces numbered 1, 2, 3, 4, 5 and 6
When the dice is thrown, the number facing up is the score.
The dice is thrown three times.

(a) Calculate the probability that the total score is 18

.....
(2)

(b) Calculate the probability that the score on the third throw is exactly double the **total** of the scores on the first **two** throws.

19. (a) Calculate the area of an equilateral triangle of side 5 cm.
Give your answer correct to 3 significant figures.

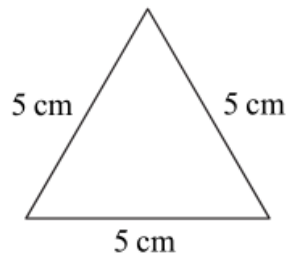


Diagram **NOT**
accurately drawn

- (b) The diagram shows two overlapping circles.
The centre of each circle lies on the circumference of the other circle.
The radius of each circle is 5 cm.
The distance between the centres is 5 cm.

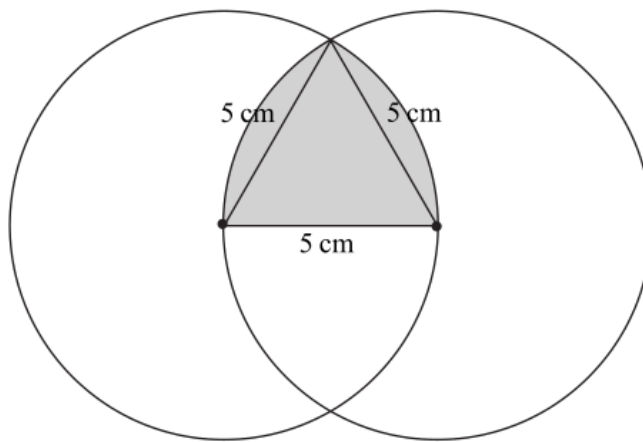
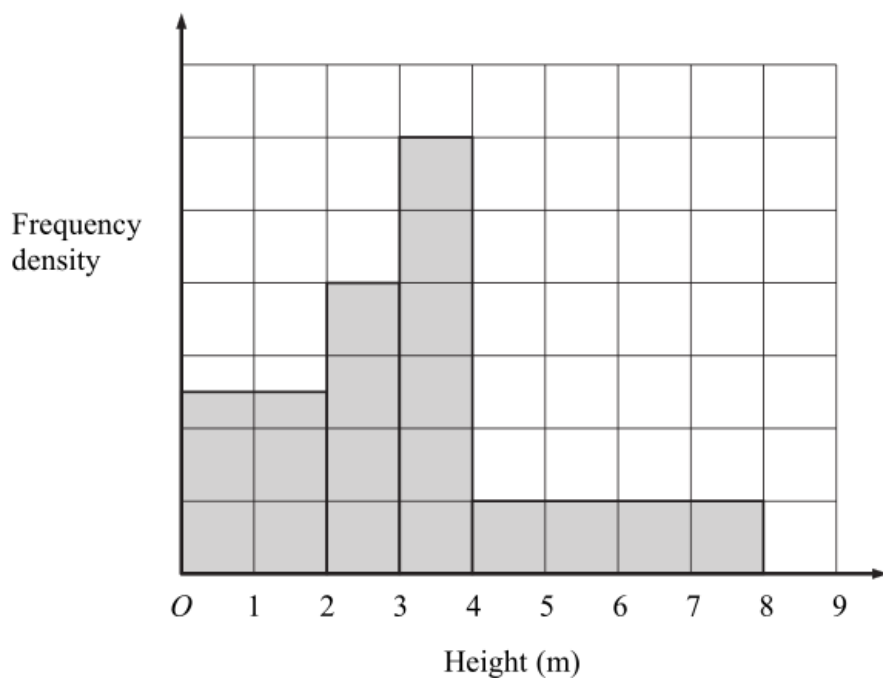


Diagram **NOT**
accurately drawn

Calculate the area of the shaded region.
Give your answer correct to 3 significant figures.

20. The histogram shows information about the height, h metres, of some trees.



The number of trees with heights in the class $2 < h \leq 3$ is 20

Find the number of trees with heights in the class

(i) $4 < h \leq 8$

(ii) $3 < h \leq 4$

21. (a) Factorise $16x^2 - 1$

.....
(1)

(b) Hence express as the product of its prime factors

(i) 1599

.....

(ii) 1.599×10^6