



DULWICH COLLEGE SHANGHAI

IGCSE – Module 1 TEST – 70 Minutes 54 Marks

Name: _____ Date _____ Teacher _____

1.

During one week in April, in Quebec, the daily minimum temperatures were

-5°C , -1°C , 3°C , 2°C , -2°C , 0°C , 6°C .

Write down

(a) the lowest of these temperatures,

Answer(a) $^{\circ}\text{C}$ [1]

(b) the range of these temperatures.

Answer(b) $^{\circ}\text{C}$ [1]

2.

Write the numbers in order of size with the **smallest** first.

$\sqrt{10}$ 3.14 $\frac{22}{7}$ π

Answer < < < [2]

3.

$\sqrt{23}$ 48% 4.80 $\frac{53}{11}$

Write the numbers in order of size with the **largest** first.

Answer > > > [2]

4.

Write down the next two prime numbers after 43.

Answer and [2]



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5.

Write the number 1045.2781 correct to

(a) 2 decimal places,

Answer(a) [1]

(b) 2 significant figures.

Answer(b) [1]

6.

Calculate the value of $5(6 \times 10^3 + 400)$, giving your answer in standard form.

Answer [2]

7.

A light on a computer comes on for 26 700 microseconds.

One microsecond is 10^{-6} seconds.

Work out the length of time, in seconds, that the light is on

(a) in standard form,

Answer(a) s [1]

(b) as a decimal.

Answer(b) s [1]



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8.

A fence is made from 32 identical pieces of wood, each of length 2 metres correct to the nearest centimetre.

Calculate the lower bound for the total length of the wood used to make this fence.

Write down your full calculator display.

Answer m [3]

9.

The length of each side of an equilateral triangle is 74 mm, correct to the nearest millimetre.

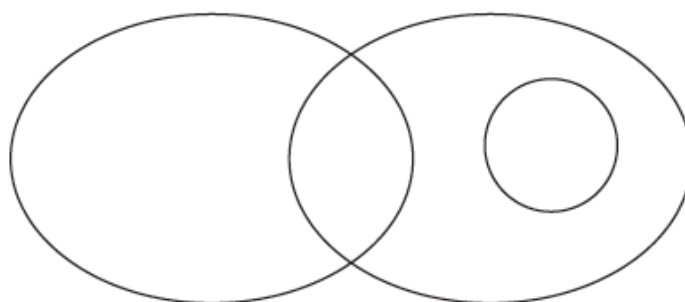
Calculate the smallest possible perimeter of the triangle.

Answer mm [2]

10

$Q = \{2, 4, 6, 8, 10\}$ and $R = \{5, 10, 15, 20\}$.
 $15 \in P$, $n(P) = 1$ and $P \cap Q = \emptyset$.

Label each set and complete the Venn diagram to show this information.

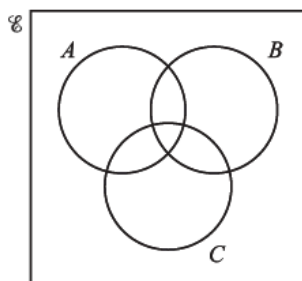


[3]

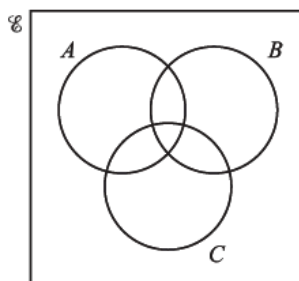


11.

Shade the required regions in the Venn diagrams below.



$(A \cup B)' \cap C$



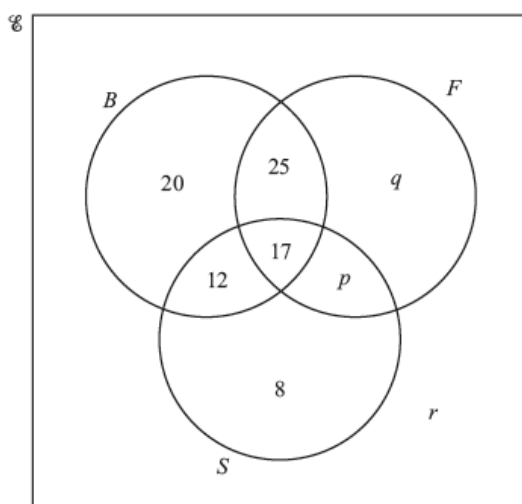
$(A \cap B) \cup C$

[2]

12

In a survey, 100 students are asked if they like basketball (B), football (F) and swimming (S).

The Venn diagram shows the results.



42 students like swimming.

40 students like exactly one sport.

(a) Find the values of p , q and r .

[3]

(b) How many students like

(i) all three sports,

[1]

(ii) basketball and swimming but not football?

[1]

(c) Find

(i) $n(B')$,

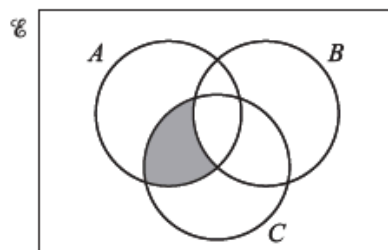
[1]

(ii) $n((B \cup F) \cap S')$.

[1]

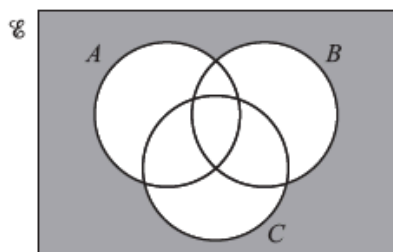


13.

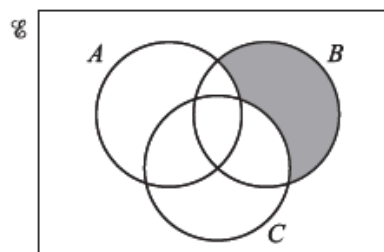


The shaded area in the diagram shows the set $(A \cap C) \cap B'$.

Write down the set shown by the shaded area in each diagram below.



.....



.....

[2]

14.

- (a) The formula for the n th term of the sequence

$$1, 5, 14, 30, 55, 91, \dots \text{ is } \frac{n(n+1)(2n+1)}{6}.$$

Find the 20th term.

Answer(a) [1]

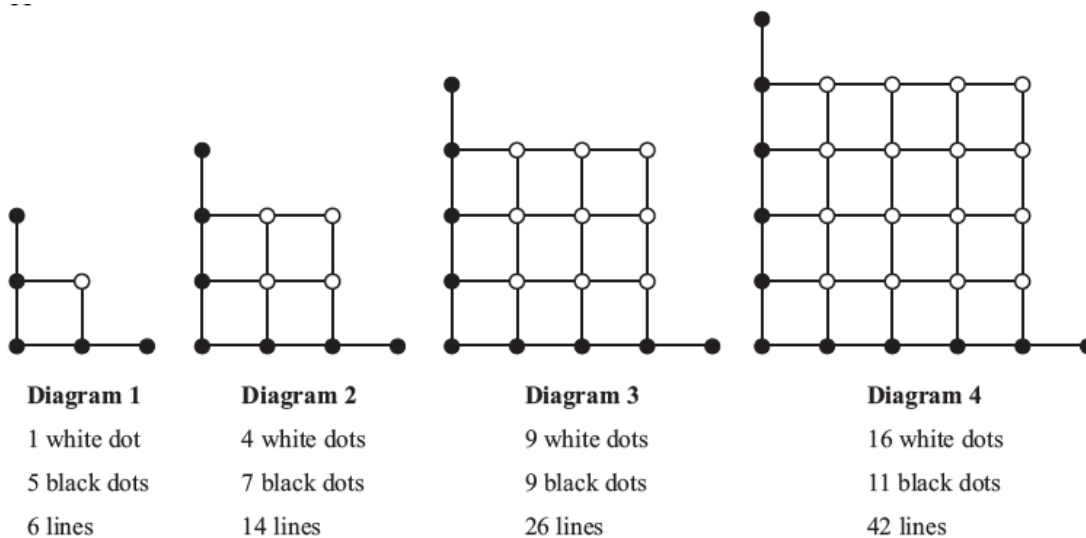
- (b) The n th term of the sequence 10, 17, 26, 37, 50, ... is $(n+2)^2 + 1$.

Write down the formula for the n th term of the sequence 17, 26, 37, 50, 65, ...

Answer(b) [1]



15.



The four diagrams above are the first four of a pattern.

- (a) Diagram 5 has been started below.
Complete this diagram and write down the information about the numbers of dots and lines.

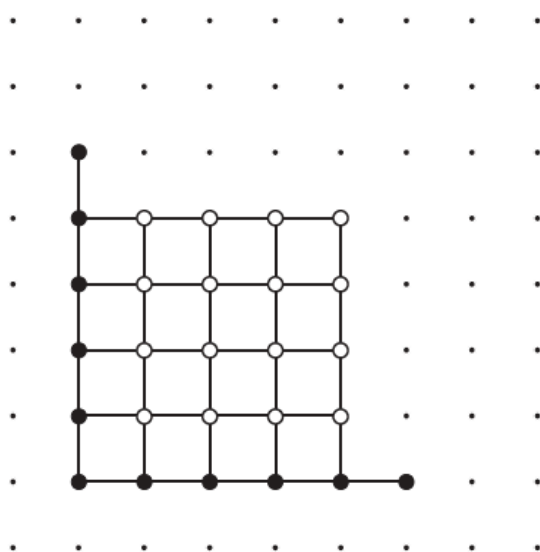


Diagram 5

..... white dots

..... black dots

..... lines



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- (b) Complete the information about the number of dots and lines in Diagram 8.

Answer(b) white dots
..... black dots
..... lines [3]

- (c) Complete the information about the number of dots in Diagram n .
Give your answers in terms of n .

Answer(c) white dots
..... black dots [2]

- (d) The number of lines in diagram n is $k(n^2 + n + 1)$.

Find

- (i) the value of k ,

Answer(d)(i) $k =$ [1]

- (ii) the number of lines in Diagram 100.

Answer(d)(ii) [1]



16.

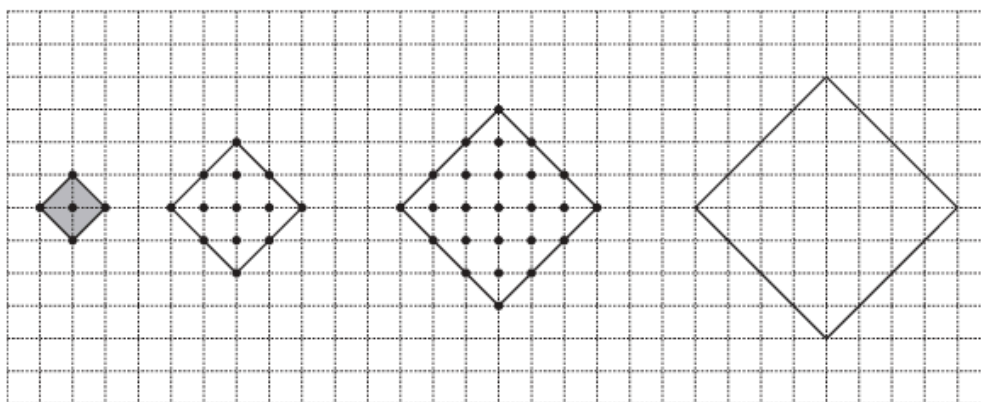


Diagram 1

Diagram 2

Diagram 3

Diagram 4

The diagrams show squares and dots on a grid.

Some dots are on the sides of each square and other dots are inside each square.

The area of the square (shaded) in Diagram 1 is 1 unit².

(a) Complete Diagram 4 by marking all the dots.

[1]

(b) Complete the columns in the table below for Diagrams 4, 5 and n .

Diagram	1	2	3	4	5	-----	n
Number of units of area	1	4	9			-----	
Number of dots inside the square	1	5	13			-----	$(n - 1)^2 + n^2$
Number of dots on the sides of the square	4	8	12			-----	
Total number of dots	5	13	25			-----	

[7]