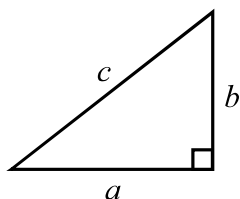


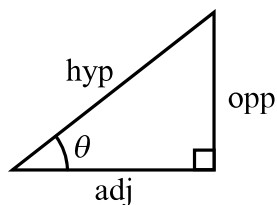
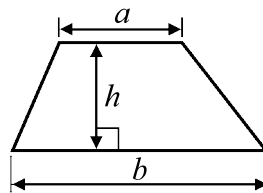
## IGCSE MATHEMATICS

## FORMULAE SHEET – FOUNDATION TIER

Pythagoras' Theorem  
 $a^2 + b^2 = c^2$



Area of a trapezium =  $\frac{1}{2}(a + b)h$



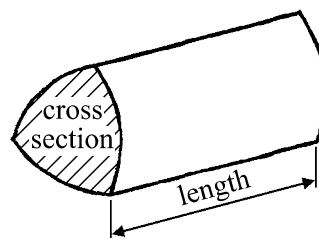
$$\begin{aligned} \text{adj} &= \text{hyp} \times \cos \theta \\ \text{opp} &= \text{hyp} \times \sin \theta \\ \text{opp} &= \text{adj} \times \tan \theta \end{aligned}$$

Volume of prism = area of cross section  $\times$  length

$$\text{or } \sin \theta = \frac{\text{opp}}{\text{hyp}}$$

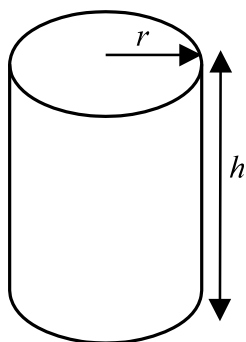
$$\cos \theta = \frac{\text{adj}}{\text{hyp}}$$

$$\tan \theta = \frac{\text{opp}}{\text{adj}}$$



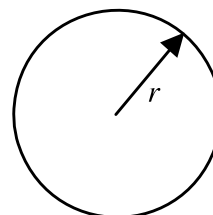
Circumference of circle =  $2\pi r$

Area of circle =  $\pi r^2$



Volume of cylinder =  $\pi r^2 h$

Curved surface area  
of cylinder =  $2\pi r h$



**Answer ALL TWENTY THREE questions.**

**Write your answers in the spaces provided.**

**You must write down all the stages in your working.**

- 1** The table shows the melting point of each of 6 metals.

<b>Metal</b>	<b>Melting point (°C)</b>
Nickel	1452
Copper	1083
Platinum	1773
Gold	1063
Silicon	1411
Iron	1530

- (a) Which of the numbers in the table is the smallest number?

.....  
(1)

- (b) Write the number 1083 in words.

.....  
(1)

- (c) Write down the value of the 5 in the number 1452

.....  
(1)

- (d) Write the number 1773 correct to the nearest ten.

.....  
(1)

- (e) Which number in the table is a multiple of 10?

.....  
(1)

- (f) One of the numbers in the table, when written correct to the nearest hundred, is 1400  
Write down this number.

.....  
(1)

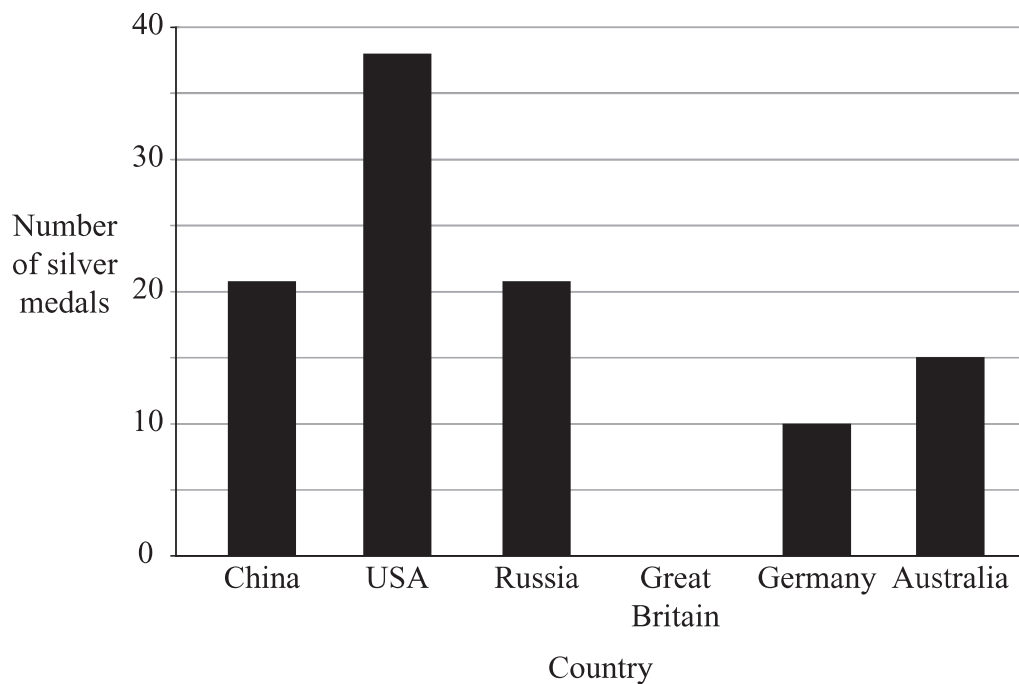
- (g) The melting point of silver is  $102^{\circ}\text{C}$  lower than the melting point of gold.  
Work out the melting point of silver.

.....  $^{\circ}\text{C}$   
(1)

**(Total for Question 1 is 7 marks)**



- 2 The bar chart shows information about the number of silver medals won by each of 5 countries at the 2008 Olympic Games.



- (a) Which two of the countries won an equal number of silver medals?

..... and .....  
(1)

- (b) How many silver medals did the USA win?

.....  
(1)

- (c) Great Britain won 13 silver medals.

Draw a bar on the bar chart to show this information.

(1)

- (d) Find the ratio of the number of silver medals won by Germany to the number of silver medals won by Australia.  
Give your ratio in its simplest form.

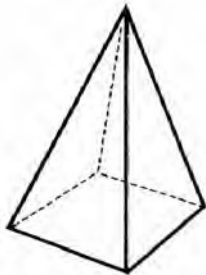
.....  
(2)

**(Total for Question 2 is 5 marks)**



3 (a) Write down the mathematical name of each of these 3-D shapes.

(i)



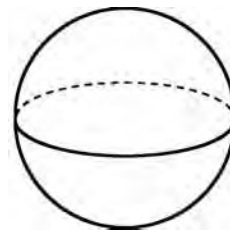
(i) .....

(ii)



(ii) .....

(iii)



(iii) ..... (3)

(b) (i) How many faces has shape (i)?

.....

(ii) How many edges has shape (i)?

.....

(2)

(c) Here is a solid prism made from centimetre cubes.

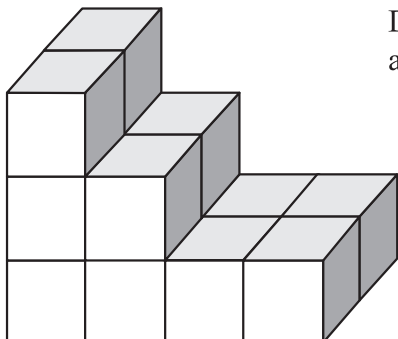
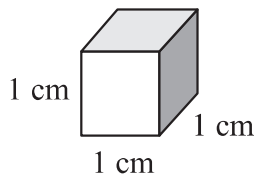


Diagram NOT accurately drawn



Find the volume of the solid prism.  
Give the units of your answer.

..... (3)

(Total for Question 3 is 8 marks)



4 Here are the first five terms of a number sequence.

1            4            16            64            256

(a) Work out the next two terms of the sequence.

....., .....  
(2)

(b) Explain how you worked out your answer.

.....  
(1)

(c) The 5th term, 256, of the sequence ends with the number 6  
What number does the 29th term of the sequence end with?

.....  
(1)

**(Total for Question 4 is 4 marks)**

5 In a survey, Wendy asked nine of her friends how many foreign countries they had visited.  
Here are her results.

7            3            4            3            9            10            2            3            4

(a) Find the mode of her results.

.....  
(1)

(b) Work out the mean of her results.

.....  
(3)

**(Total for Question 5 is 4 marks)**



- 6 The table shows the percentage of the population of Sri Lanka who follow each of 4 religions.

Religion	Percentage of population
Buddhism	69%
Hinduism	16%
Islam	8%
Christianity	7%

- (a) Write 16% as a fraction.

Give your fraction in its simplest form.

.....  
(2)

- (b) Write 7% as a decimal.

.....  
(1)

- (c) What percentage of the population does not follow Buddhism?

..... %  
(1)

- (d) The population of Sri Lanka is 21 million.

Work out 16% of 21 million.

Give your answer correct to the nearest million.

..... million  
(2)

**(Total for Question 6 is 6 marks)**



7

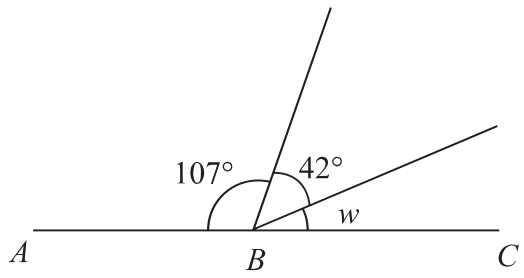


Diagram **NOT** accurately drawn

$ABC$  is a straight line.

(a) (i) Work out the size of angle  $w$ .

.....

(ii) Give a reason for your answer.

.....  
 .....

(2)

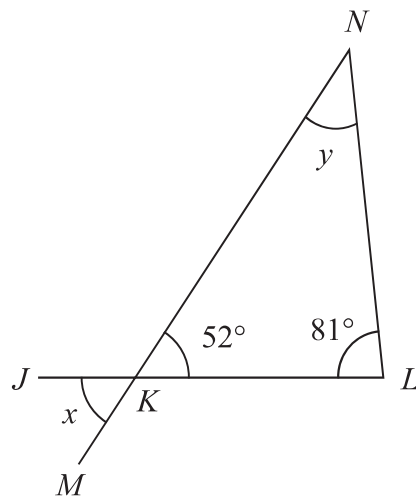


Diagram **NOT** accurately drawn

$JKL$  and  $MKN$  are straight lines.

(b) (i) Find the size of angle  $x$ .

.....

(ii) Find the size of angle  $y$ .

.....

(3)

(Total for Question 7 is 5 marks)



8 (a) (i) Find  $\sqrt{19}$

Write down all the figures on your calculator display.

.....

(ii) Write your answer to part (i) correct to 2 decimal places.

.....

(2)

(b) Find  $16^3$

.....

(1)

**(Total for Question 8 is 3 marks)**

9 (a) Simplify  $m + m + m - m + m + m - m$

.....

(1)

(b) Simplify  $5x - 3y + 4x - 2y$

.....

(2)

**(Total for Question 9 is 3 marks)**

10 A box containing screws weighs 1.21 kilograms.

Each screw weighs 2.5 grams.

When empty, the box weighs 60 grams.

Work out the number of screws in the box.

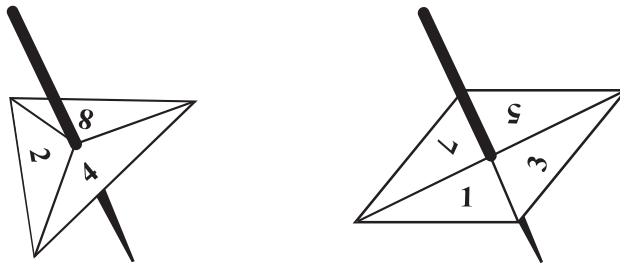
.....

**(Total for Question 10 is 4 marks)**





11



Premila has two spinners.

The sides of one spinner are labelled 2, 4 and 8

The sides of the other spinner are labelled 1, 3, 5 and 7

Premila spins both spinners.

(a) List all the possible outcomes.

One has been done for you.

(2, 1) .....

(2)

(b) Both spinners are fair.

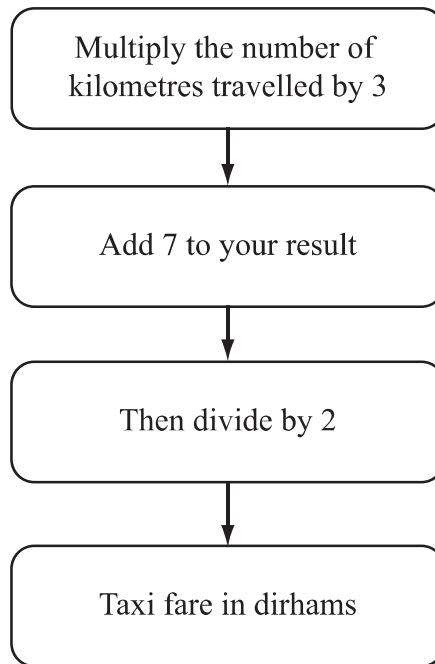
Find the probability of an outcome in which the number on the 3-sided spinner is greater than the number on the 4-sided spinner.

.....  
(2)

**(Total for Question 11 is 4 marks)**



12 This rule can be used to work out the fare, in dirhams, for a taxi journey in Dubai.



- (a) Paulo travelled 9 kilometres.  
Work out his fare.

..... dirhams  
(2)

- (b) Janine's fare was 26 dirhams.  
Work out the number of kilometres she travelled.

.....  
(2)

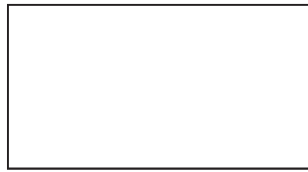
- (c) Find a formula for the fare,  $C$  dirhams, for a taxi journey of  $d$  kilometres.

.....  
(3)

(Total for Question 12 is 7 marks)



13



8 cm

Diagram **NOT**  
accurately drawn

The length of a rectangle is 8 cm.  
The area of the rectangle is 52 cm<sup>2</sup>.

Work out the perimeter of the rectangle.

..... cm

**(Total for Question 13 is 3 marks)**

14 (a) Use your calculator to work out the value of

$$\frac{24.1}{8.4 - 7.8} - 6.2^2$$

Write down all the figures on your calculator display.

.....  
(2)

(b) Give your answer to part (a) correct to 3 significant figures.

.....  
(1)**(Total for Question 14 is 3 marks)**

15

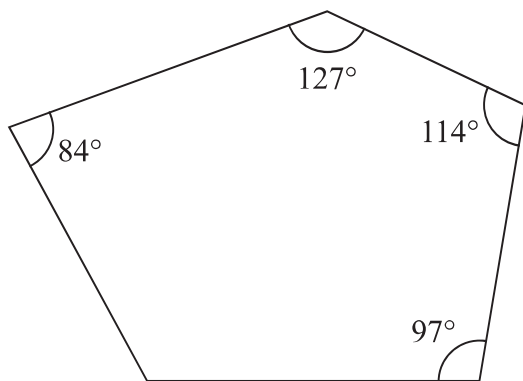


Diagram **NOT**  
accurately drawn

Four of the angles of a pentagon are  $97^\circ$ ,  $114^\circ$ ,  $127^\circ$  and  $84^\circ$ .

Work out the size of the fifth angle.

○

.....  
(Total for Question 15 is 4 marks)



16 (a) Factorise  $w^2 - 9w$

.....  
(2)

(b) Solve  $5x - 1 = 2x - 7$

$x =$  .....  
(3)

(c) Expand and simplify  $(y - 7)(y + 3)$

.....  
(2)

**(Total for Question 16 is 7 marks)**

---



17 Every morning, Samath has one glass of fruit juice with his breakfast. He chooses at random orange juice or pineapple juice or mango juice. The probability that he chooses orange juice is 0.6  
The probability that he chooses pineapple juice is 0.3

(a) Work out the probability that he chooses mango juice.

.....  
(2)

(b) There are 30 days in April.

Work out an estimate for the number of days in April on which Samath chooses orange juice.

.....  
(2)

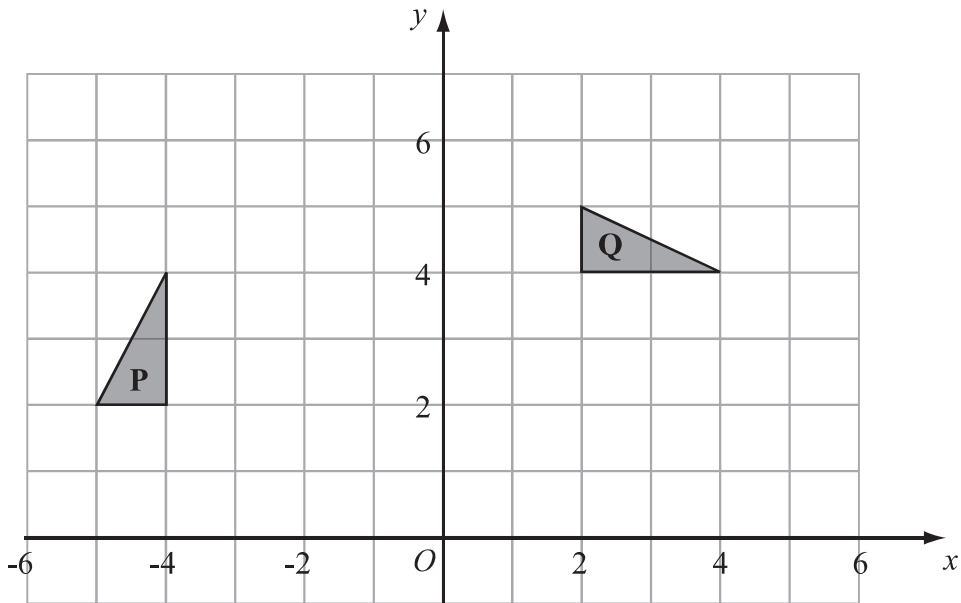
**(Total for Question 17 is 4 marks)**

18 Show that  $\frac{5}{6} - \frac{3}{4} = \frac{1}{12}$

**(Total for Question 18 is 2 marks)**



19



(a) Describe fully the single transformation which maps triangle **P** onto triangle **Q**.

(3)

(b) Reflect triangle **Q** in the line  $y = x$ .

Label the new triangle **R**.

(2)

**(Total for Question 19 is 5 marks)**

**20** The perimeter of a triangle is 90 cm.  
 The lengths of the sides of the triangle are in the ratios 3 : 5 : 7  
 Work out the length of the longest side of the triangle.

..... cm

**(Total for Question 20 is 3 marks)**



21 The table shows information about the weights of 80 parcels.

Weight ( $w$ kg)	Frequency
$0 < w \leq 2$	8
$2 < w \leq 4$	14
$4 < w \leq 6$	26
$6 < w \leq 8$	17
$8 < w \leq 10$	10
$10 < w \leq 12$	5

Work out an estimate for the total weight of the 80 parcels.

..... kg

**(Total for Question 21 is 3 marks)**





22  $\mathcal{E} = \{2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$

$A = \{\text{odd numbers}\}$

$P = \{\text{prime numbers}\}$

(a) List the members of the set

(i)  $A \cap P$ ,

.....

(ii)  $A \cup P$ .

.....

(2)

(b) (i) Is it true that  $8 \notin A$ ?

Tick ( $\checkmark$ ) the appropriate box.

Yes     No

(ii) Explain your answer.

.....

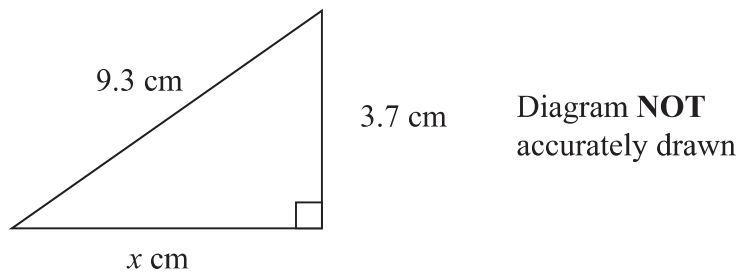
.....

(1)

**(Total for Question 22 is 3 marks)**



23



Work out the value of  $x$ .  
Give your answer correct to 3 significant figures.

$$x = \dots\dots\dots$$

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**(Total for Question 23 is 3 marks)**

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**TOTAL FOR PAPER IS 100 MARKS**

