



GCSE MATHEMATICS

S21-C300

Non Calculator Assessment Resource A

Foundation Tier Component 2

Formula list

Area and volume formulae

Where r is the radius of the sphere or cone, l is the slant height of a cone and h is the perpendicular height of a cone:

$$\text{Curved surface area of a cone} = \pi r l$$

$$\text{Surface area of a sphere} = 4\pi r^2$$

$$\text{Volume of a sphere} = \frac{4}{3}\pi r^3$$

$$\text{Volume of a cone} = \frac{1}{3}\pi r^2 h$$

Kinematics formulae

Where a is constant acceleration, u is initial velocity, v is final velocity, s is displacement from the position when $t = 0$ and t is time taken:

$$v = u + at$$

$$s = ut + \frac{1}{2}at^2$$

$$v^2 = u^2 + 2as$$

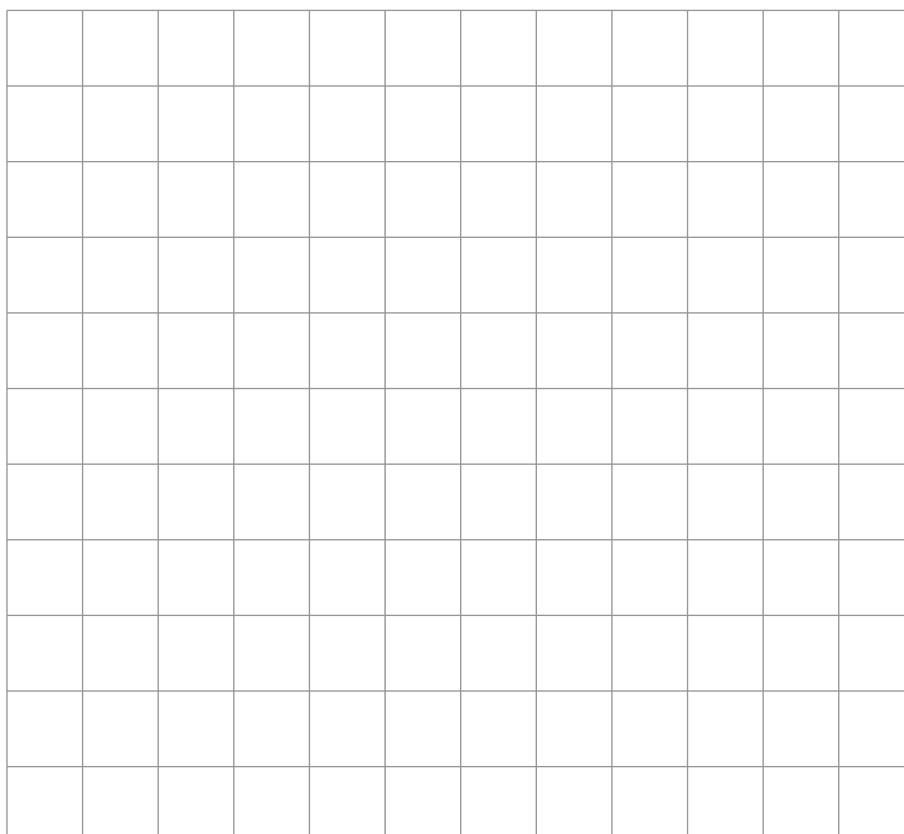
1. (a) (i) This table shows the total number of medals won by four countries in the 2012 London Olympic Games.

Country	Number of medals
Brazil	17
Kenya	12
Jamaica	12
South Africa	6
















Draw a bar chart to show this information.

[3]

2012 Olympic Medals Won



- (ii) The pictogram shows the total number of medals won by the same four countries in the 2016 Rio Olympic Games.

Brazil					
Kenya					
Jamaica					
South Africa					

Key:  represents 4 medals

Use the information given in the table and pictogram to complete the sentences below:

The total number of medals won by Brazil in 2016 is more than they won in 2012.

The total number of medals won by in 2016 is 4 more than they won in 2012. [2]

- (b) In 2016, the total of gold, silver and bronze medals won by China was 70.

They won:

- 18 silver medals,
- the same number of gold medals as they did bronze medals.

How many gold medals did China win? [2]

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..... gold medals

3. (a) Simplify

(i) $2a - b + 5a - 3b,$ [2]

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(ii) $1 + 4 \times c \times c.$ [1]

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(b) (i) This formula converts a UK shoe size to a Japanese shoe size.

$$\text{Japanese size} = \text{UK size} + 19$$

Yuto wears a Japanese size 29.5.

What would Yuto's shoe size be in the UK? [1]

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(ii) This table shows the equivalent shoe sizes used in the UK and the USA.

UK size	5	6	7	8	9
USA size	6	7	8	9	10

Complete this formula connecting the UK size and the USA size. [1]

UK size =

4. Twelve members of a running club take part in three runs.

(a) The table shows the times taken, in hours, by the 12 runners to complete the first run.

1.2	0.9	2.5	1.3	2.1	2.6
1.8	2.0	2.1	2.1	1.5	2.2

(i) Find the mode of the times.

[1]

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(ii) Find the range of the times.

[1]

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(iii) A runner was chosen at random from those who took part in the first run.

Find the probability that this runner took at most 1.5 hours.

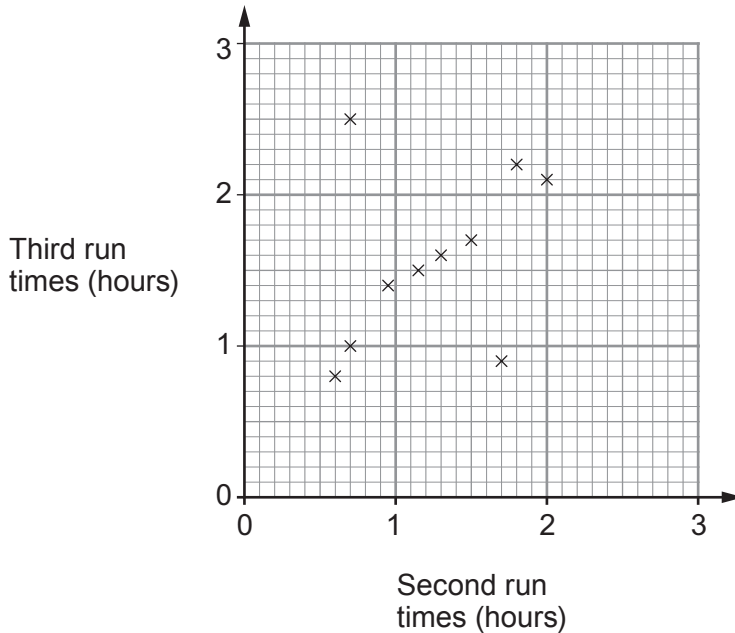
[1]

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- (b) The scatter diagram shows the times it took 10 of the runners to complete the other two runs.



- (i) One of these 10 runners was injured during the third run and walked most of the way.

Circle the plot most likely to represent this runner on the scatter diagram. [1]

- (ii) The times, in hours, taken by the remaining 2 runners were:

	Runner 11	Runner 12
Second run	1.8	2.2
Third run	1.9	2.4

Plot these times on the scatter diagram. [2]

- (iii) Using the information on the completed scatter diagram, what was the difference between the fastest time for the second run and the fastest time for the third run? Give your answer in minutes. [3]

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Time difference = minutes

5. (a) Solve $19 - 4x = 11$.

[2]

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(b) Solve $\frac{2x-3}{4} = 3x$.

[3]

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(c) (i) Solve $3x + 2 > 5$.

[2]

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(ii) Represent your answer to part (c)(i) on the number line below.

[1]

