



# **GCSE MATHEMATICS**

S21-C300

## **Non-Calculator Assessment Resource C**

Foundation Tier

## 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) Work out  $0.5 \times 100$ . [1]

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.....

(ii) Work out  $45 \div 10$ . [1]

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(b) Write 0.31 as

(i) a fraction, [1]

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(ii) a percentage. [1]

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(c) Circle the greatest value. [1]

4.07            4.18            4.601            4.0615            4.009

(d) Work out  $\frac{4}{5}$  of 45. [2]

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2. *Cover Insurance* sells insurance for laptops. They have two offers.

Laptop insurance **Offer 1**  
One payment only  
**£60 for one whole year**

Laptop insurance **Offer 2**  
Pay monthly  
**12 months for £4.50 per month**

(a) Mika wants to buy insurance for his laptop.

Show that if Mika uses Offer 2 he will save 10% of the cost of using Offer 1. [3]

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(b) During April, *Cover Insurance* sold 630 policies.

How many policies per day, on average, did they sell for this month? [2]

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3. The table shows nutritional information about a bottle of the sports drink, *Fitade*.

Nutritional Information	per 100 ml	per bottle
Energy (kilocalories)	28	.....
Carbohydrate (grams)	6.25	25
of which sugars (grams)	4	16
Salt (grams)	.....	0.4

(a) Complete the table.

[3]

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(b) One afternoon, Tori drinks 3 full bottles of *Fitade*.

How many millilitres of *Fitade* does Tori drink altogether, and how many grams of salt does this contain?

[2]

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She drinks ..... ml containing ..... grams of salt.

(c) Show that sugars are 64% of the carbohydrate in *Fitade*.  
You must show all your working.

[1]

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4. Steph is a baker.

(a) She bakes 42 white rolls and 60 brown rolls.

Write the ratio of white rolls to brown rolls in its simplest form. [2]

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white rolls : brown rolls = ..... : .....

(b) Steph makes scones in three flavours: cheese, fruit and plain.  
She makes:

- 4 times as many fruit scones as cheese scones,
- 3 times as many plain scones as cheese scones.

She sells each scone for the same price.  
She makes a total of £96 from the sale of all the scones.

How much does she make from the sale of the plain scones? [3]

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(c) Steph makes and sells birthday cakes.  
Each cake costs £54 to make.  
She makes a profit of 15% on each cake.

What is the selling price of Steph's birthday cakes? [2]

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Selling price = £ .....

5. Terry is doing his homework.

(a) He is trying to find the value of  $x$  when

$$x : 2 = 30 : 12$$

He writes:

$$\begin{array}{r} \hline \hline -18 \\ \hline x : 2 = 30 : 12 \\ \hline \hline \text{The rule is } -18 \\ \hline \hline \text{So } x = 20 \\ \hline \hline \end{array}$$

Explain why Terry is wrong.

[1]

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(b) Terry's next question is:

A factory production line makes 275 thousand cans of drink in 5 hours. How many hours would it take for this production line to make 165 thousand cans of the same drink? You may assume each can is the same size.

Terry thinks the answer is 3 hours.

Is Terry correct?

Yes  No

Show how you decide.

[2]

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6. Huw is paid a weekly wage.

Every week he:

- saves  $\frac{1}{5}$  of his wage,
- spends 70% of the money **he has left** on his living expenses,
- spends all that remains on his social life.

(a) One week, Huw saves £40.

How much does Huw spend on his social life?

[3]

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(b) What percentage of his weekly wage does Huw spend on his social life?

[2]

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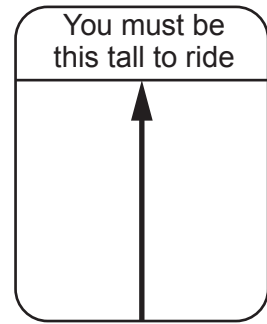
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7. When Jenna was measured recently she was 127 cm tall, **correct to the nearest centimetre**.

For safety reasons, the minimum height for a person to ride the Big Coaster at a funfair in the USA is 50 inches.

You are given:  
20 inches = 50.8 cm.



- (a) Using the information given, decide whether it might possibly be safe, it is definitely safe, or it is definitely not safe for Jenna to ride the Big Coaster.

Might possibly be safe  Definitely safe  Definitely not safe

Show how you decide.

[3]

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- (b) (i) State an assumption that you have made in your answer to part (a). [1]

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- (ii) Comment on the effect that your assumption has had on your decision. [1]

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