



GCSE MATHEMATICS

S21-C300

With Calculator Assessment Resource H

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) At 8 a.m. the temperature in a new freezer is 22°C .
The temperature decreases at 4°C per hour.

At what time will it reach -14°C ?

[2]

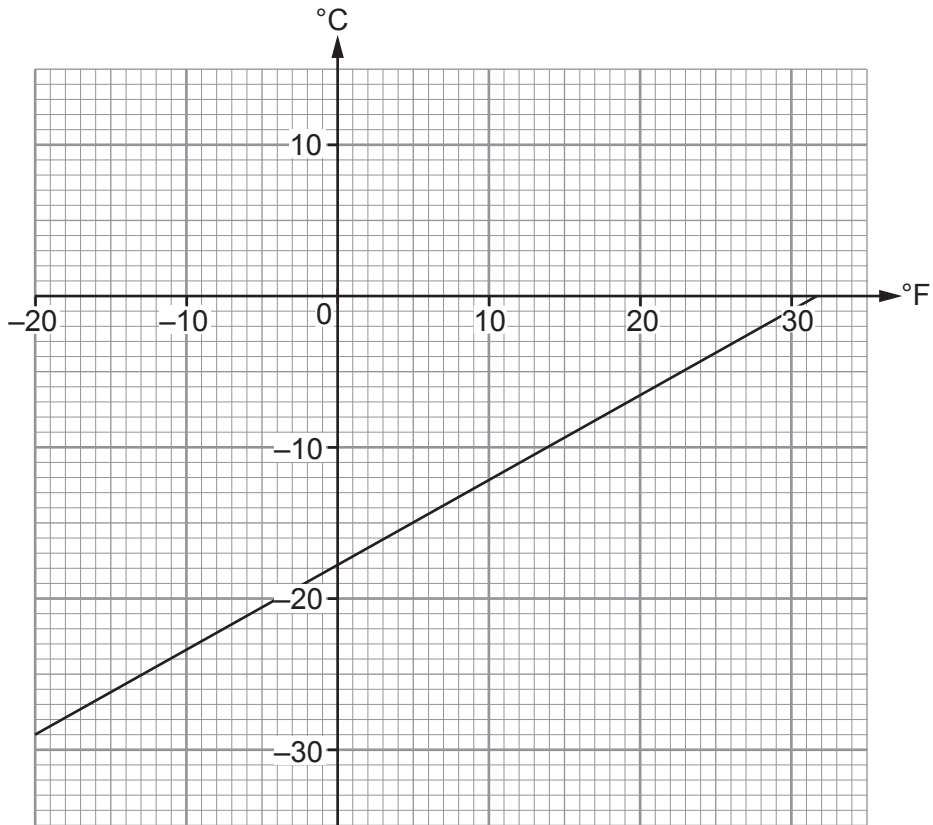
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- (b) The graph below can be used to convert between degrees Fahrenheit ($^{\circ}\text{F}$) and degrees Celsius ($^{\circ}\text{C}$).



Use the graph to convert the temperature -14°C to $^{\circ}\text{F}$.

[1]

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2. Fabric is sold from rolls.
All the rolls contain fabric of the same width.
Any length can be cut from a roll of fabric.

Tien buys:

- a 1.8 m length of flowered fabric,
- a 3.2 m length of plain fabric.



Flowered fabric costs £12.50 for one metre.
Tien spends £58.50 altogether.

Show that plain fabric costs £11.25 for one metre.

[3]

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3. (a) The original price of a car is £6500.
It is sold at a 12.5% discount.

Calculate the discounted price.

[3]

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Discounted price = £

- (b) Emma borrows £875 to pay for a new computer.
She pays simple interest on the loan at 6% per year for 3 years.

Calculate the total amount of interest Emma pays.

[2]

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Interest = £

- (c) Asha buys a bike.
She sells it for three times what she paid for it.

What percentage profit has Asha made?

[1]

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Percentage profit = %

4. (a) 135 women and 150 men were asked to complete a survey.
44 of the women completed the survey.
32% of the men completed the survey.

Which of the following statements is correct?
You must show all your working.

[3]

A greater proportion of men than women completed the survey.

A greater proportion of women than men completed the survey.

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- (b) 225 people took part in a different survey.
40% were women.
20% of the women were over 50 years of age.

How many women over 50 years of age took part in this survey?

[3]

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5.



200 ml	375 ml	500 ml
98p	£1.80	£2.30

Which size of bottle offers the best value for money?

200 ml

375 ml

500 ml

Show how you decide.

[3]

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6. (a) Sam and Jody share £366 in the ratio 1 : 3.

How much money does Jody get?

[2]

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Jody gets £

(b) Maria is 4 years old.
She is half Connor's age.

What will be the ratio of their ages in 2 years' time?
Give your answer in its simplest form.

[2]

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Maria's age : Connor's age will be :

8. Cheng stands at O and rolls a ball along the horizontal ground.

The ball stops at point B , which:

- is equidistant from X and Y ,
- lies on the bisector of angle XOY .

Use a ruler and a pair of compasses to **construct** suitable lines and arcs to show the position of point B .

Construction arcs must be clearly shown.

[5]

$X \cdot$

$\cdot Y$

$O \cdot$

