



GCSE MATHEMATICS

S21-C300

With Calculator Assessment Resource A

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. The table below shows the prices of items in a shop.

| Price List | |
|----------------|-------|
| Eraser | 58p |
| Revision guide | £3.45 |
| Calculator | £7.25 |
| Pen | 35p |
| Geometry set | £0.95 |

(a) Write the prices in order, starting with the cheapest. [2]

Change pence to pound for easy comparison
 pen = 0.35 Eraser = 0.58

pen Eraser Geometry Set Revision Guide Calculator
 Cheapest

(b) What is the cost of 1100 erasers? [1]

$1100 \times \pounds 0.58 = \underline{\underline{\pounds 638}}$

(c) Fred buys some pens.
 He pays a total of £4.90.
 How many pens does Fred buy? [2]

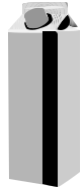
$\pounds 4.90 \div \pounds 0.35 = \underline{\underline{14 \text{ pens}}}$

(d) Salma buys a pen, a geometry set and a calculator. She pays with a £10 note.
 How much change should she get? [2]

total cost = $\pounds 7.25 + \pounds 0.95 + \pounds 0.35 = \pounds 8.55$

Change = $\pounds 10.00 - \pounds 8.55 = \underline{\underline{\pounds 1.45}}$

8. 7 cartons of apple juice and 2 cartons of grapefruit juice cost £6.15 altogether.
5 cartons of apple juice and 8 cartons of grapefruit juice cost £9.19 altogether.



Use an algebraic method to calculate the **total** cost of 2 cartons of apple juice and 5 cartons of grapefruit juice.

apple juice = x grapefruit = y

[5]

① $7x + 2y = 6.15$ ② $5x + 8y = 9.19$

① $\times 4$ $28x + 8y = 24.6$

② $5x + 8y = 9.19$

$23x + 0y = 15.41$

$x = \frac{15.41}{23} = \underline{\underline{£0.67}}$

Plug x into ② $5(0.67) + 8y = 9.19$

$3.35 + 8y = 9.19$

$8y = 5.84$

$y = \frac{5.84}{8} = \underline{\underline{£0.73}}$

2 cartons apple + 5 grapefruit cartons

$2x + 5y \rightarrow 2(0.67) + 5(0.73) = \underline{\underline{£4.99}}$

Total cost of 2 cartons of apple juice and 5 cartons of grapefruit juice is £ 4.99