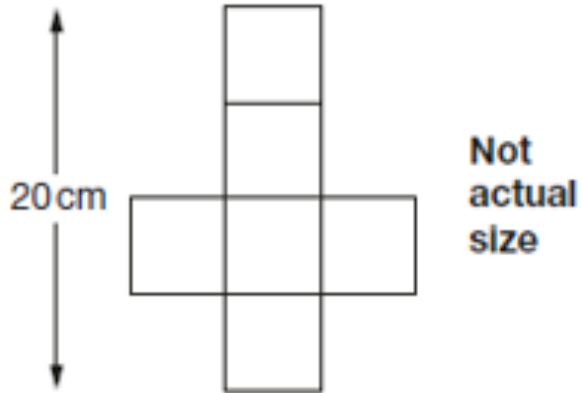


Additional Maths Audit Tutorial

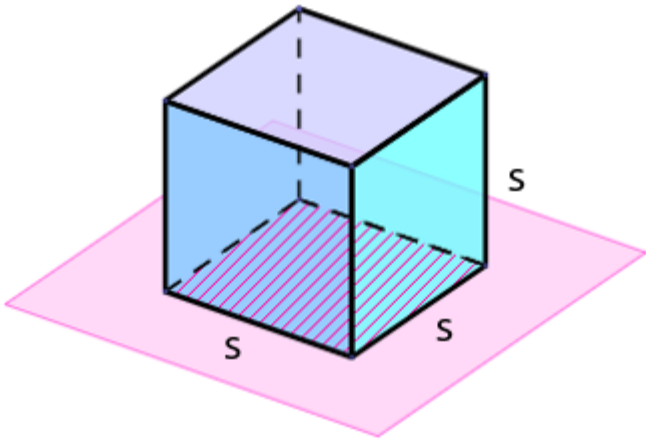
End of KS2 SATs questions

This is the net of a cube.



What is the volume of the cube?

Volume of Cube



Volume of cube with side lengths s

$$V = s \times s \times s = s^3$$

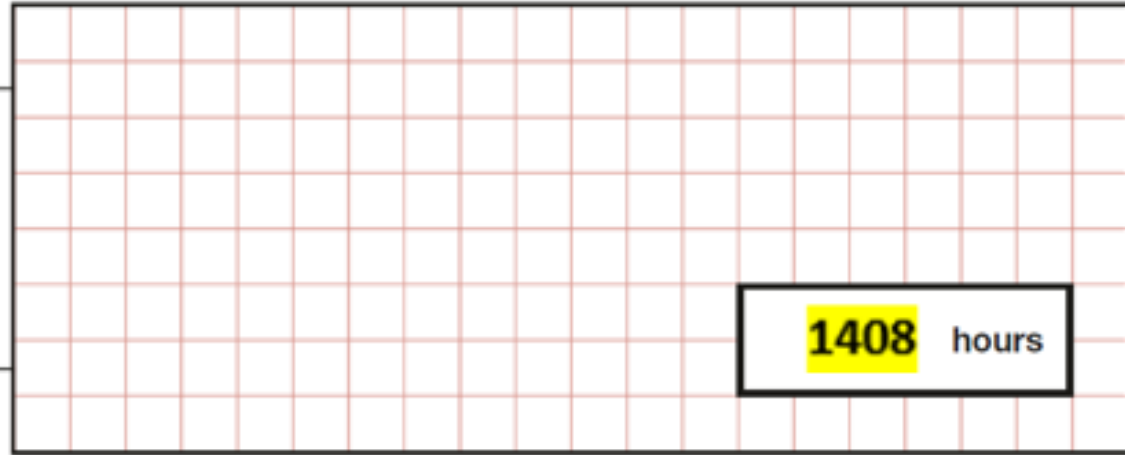
125 cm³

- ▶ Total length of 4 boxes = 20cm
- ▶ Therefore length of 1 box = $20\text{cm} \div 4 = 5\text{cm}$
- ▶ We know this is a cube, which is made of square faces, so the length and width will be the same length (5cm).
- ▶ To find the volume of a cube we need to use the formula displayed. Therefore:
- ▶ $5\text{cm} \times 5\text{cm} \times 5\text{cm}$ which could also be written as 5^3
- ▶ Volume = 125cm³

The length of a day on Earth is 24 hours.

The length of a day on Mercury is $58\frac{2}{3}$ times the length of a day on Earth.

What is the length of a day on Mercury, in **hours**?



Remember x can be thought of as 'of'
So $\frac{1}{2} \times 12$ can be thought of as $\frac{1}{2}$ of 12

- ▶ From the information we can tell that the calculation we need to do is:

$$58\frac{2}{3} \times 24$$

Probably easiest to split the whole number apart from the fraction, so:

$$58 \times 24 = 1392$$

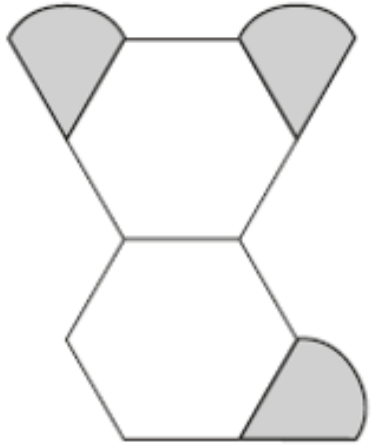
$$\frac{2}{3} \times 24 = 16 \text{ (because } \frac{1}{3} = 8 \text{)}$$

Then add together the separate answers:

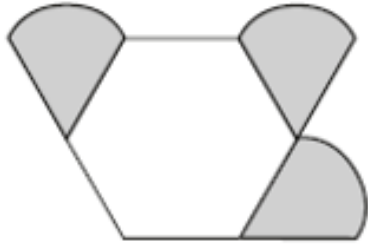
$$1392 + 16 = \underline{1408}$$

Amina is making designs with two different shapes.

She gives each shape a value.



Total value is 147



Total value is 111

Calculate the value of each shape.



=

36



=

25



= 147



= 111



= 36

$$111 - 36 = 75$$

$$75 \div 3 = 25$$

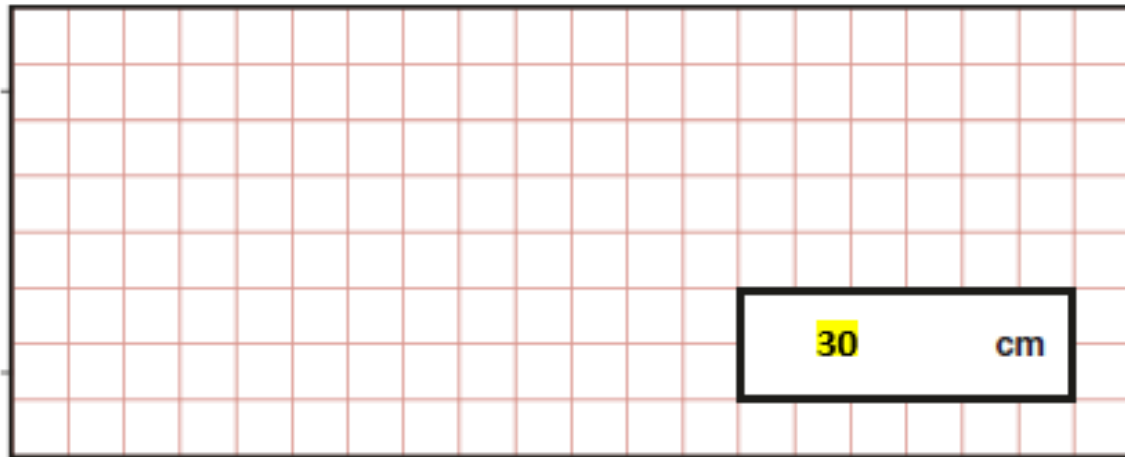
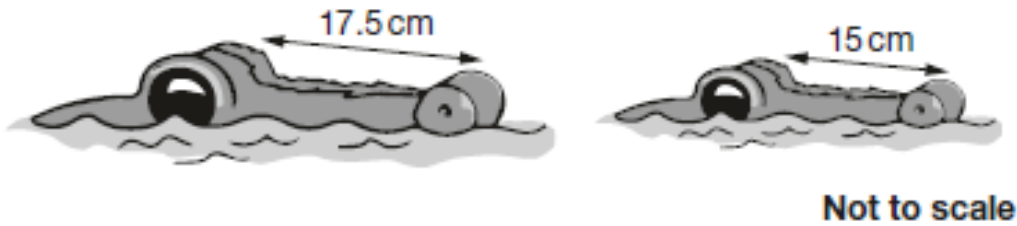


= 25

The length of an alligator can be estimated by:

- measuring the distance from its eyes to its nose
- then multiplying that distance by 12

What is the **difference** in the estimated lengths of these two alligators?



Alligator 1:

$$17.5 \times 12 = 175 + 35 = \mathbf{210}$$

Alligator 2:

$$15 \times 12 = 150 + 30 = \mathbf{180}$$

Difference in estimated length:

$$210 - 180 = \mathbf{\underline{30cm}}$$



$$33,630 = 354 \times 95$$

Use this multiplication to complete the calculations below.

$$354 \times 9.5 = \boxed{3363}$$

$$3,540 \times 95 = \boxed{336300}$$

$$3,363 \div 95 = \boxed{35.4}$$

Number is 10x smaller

$$3363 \div 95 = 35.4$$

Use the inverse of the original calculation:
 $33,630 \div 95 = 354$

The total (3363) is 10x smaller than the original, therefore the answer will be 10x smaller.

$$354 \times 9.5$$

Number is 10x smaller

Therefore the answer will be 10x smaller = **3363**

Number is 10x larger

$$3540 \times 95$$

Therefore the answer will be 10x larger = **336300**

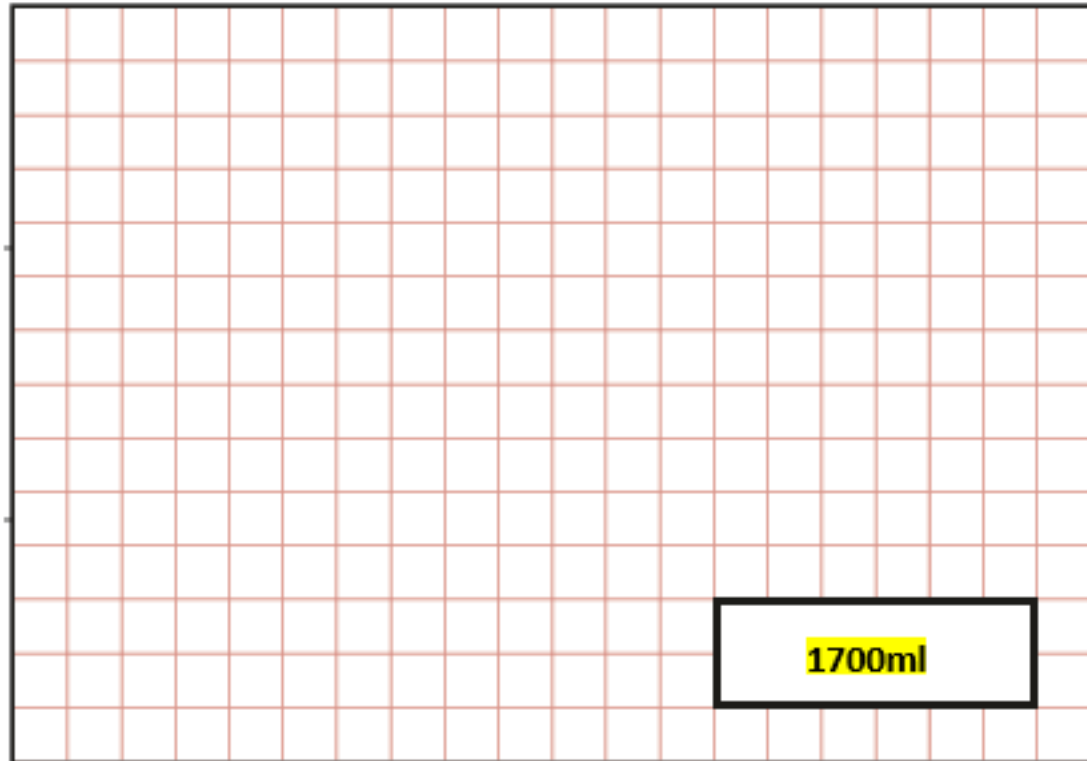
There are 28 pupils in a class.

The teacher has 8 litres of orange juice.

She pours 225 millilitres of orange juice for every pupil.




How much orange juice is left over?



Key fact: 1000ml = 1litre

Total amount of juice = 8 litres or (8000ml)

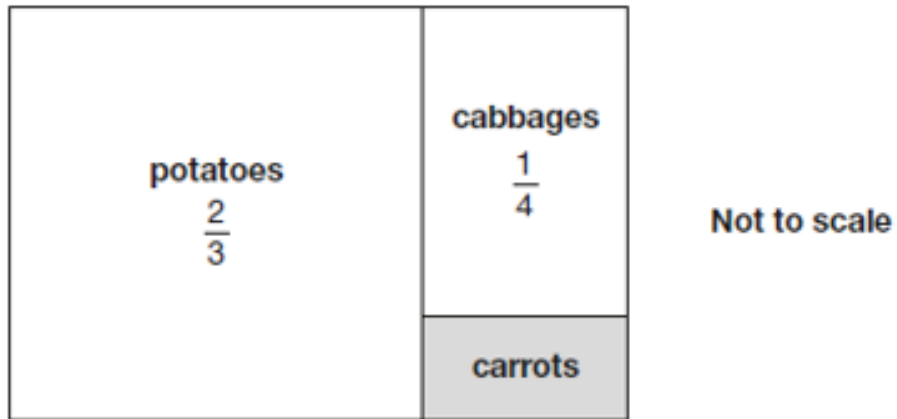
Total amount of juice poured:

 $28 \times 225\text{ml} = 6300\text{ml}$

$$8000\text{ml} - 6300\text{ml} = \underline{1700\text{ml}}$$

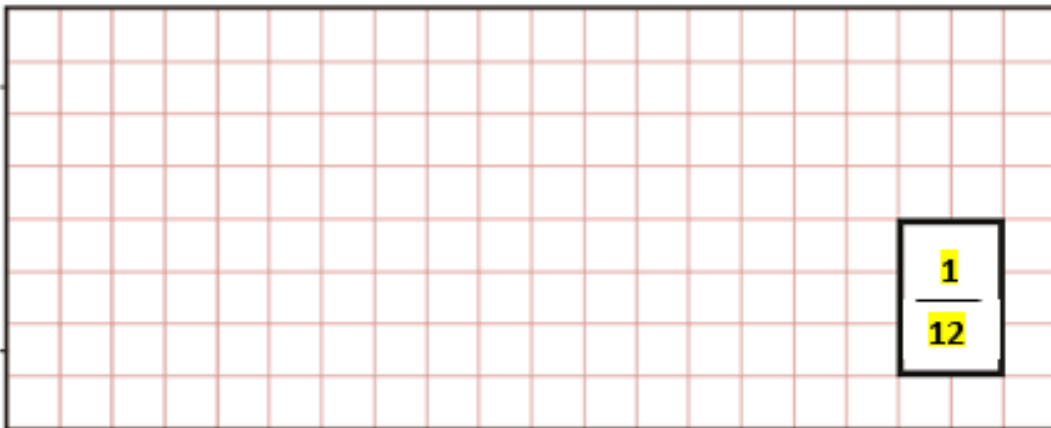
This is a diagram of a vegetable garden.

It shows the fractions of the garden planted with potatoes and cabbages.



The remaining area is planted with carrots.

What **fraction** of the garden is planted with carrots?



Find a common multiple for 3 and 4 = 12

So convert the 2 different fractions into equivalent fractions which have 12 as the denominator:

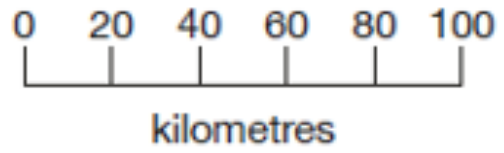
$$\frac{2}{3} = \frac{8}{12} \quad \text{and} \quad \frac{1}{4} = \frac{3}{12}$$

Now you can add the 2 fractions together as they have the same denominator:

$$\frac{8}{12} + \frac{3}{12} = \frac{11}{12}$$

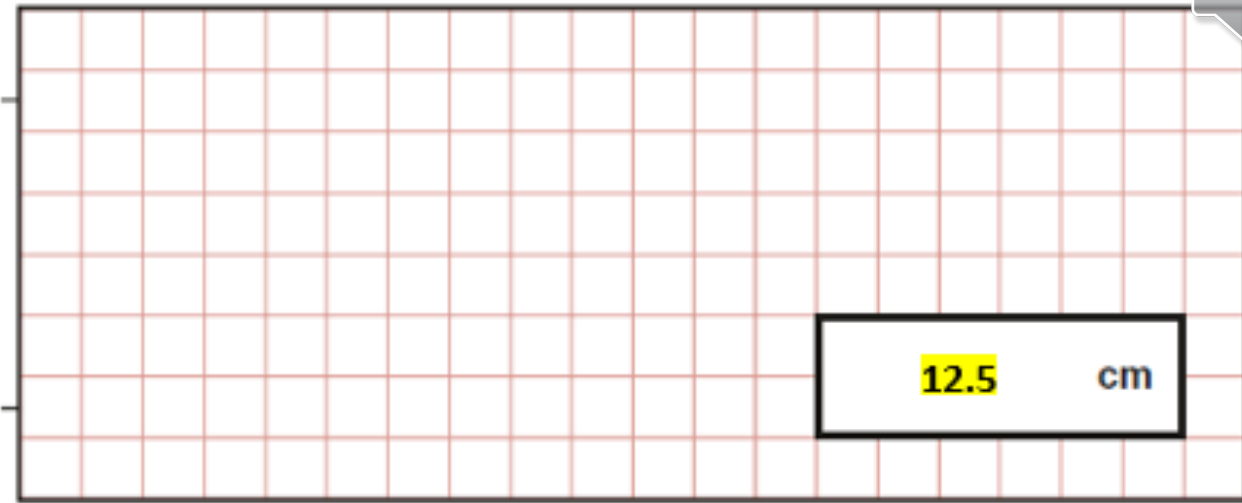
If $\frac{11}{12}$ of the garden is planted with potatoes of cabbages, then the rest must be $\frac{1}{12}$ **for carrots.**

On a map, 1cm represents 20 km.

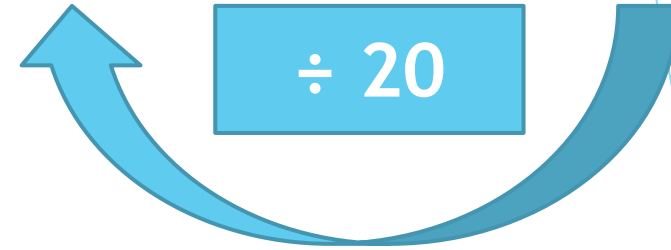


The distance between two cities is 250 km.

On the map, what is the distance between the two cities?



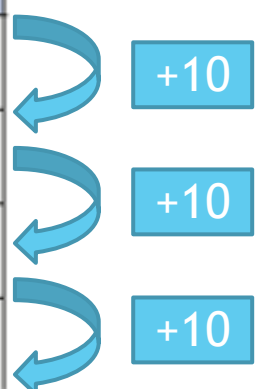
1cm represents 20km



$$250 \div 20 = 12.5$$

Here is a pattern of number pairs.

a	b
1	9
2	19
3	29
4	39

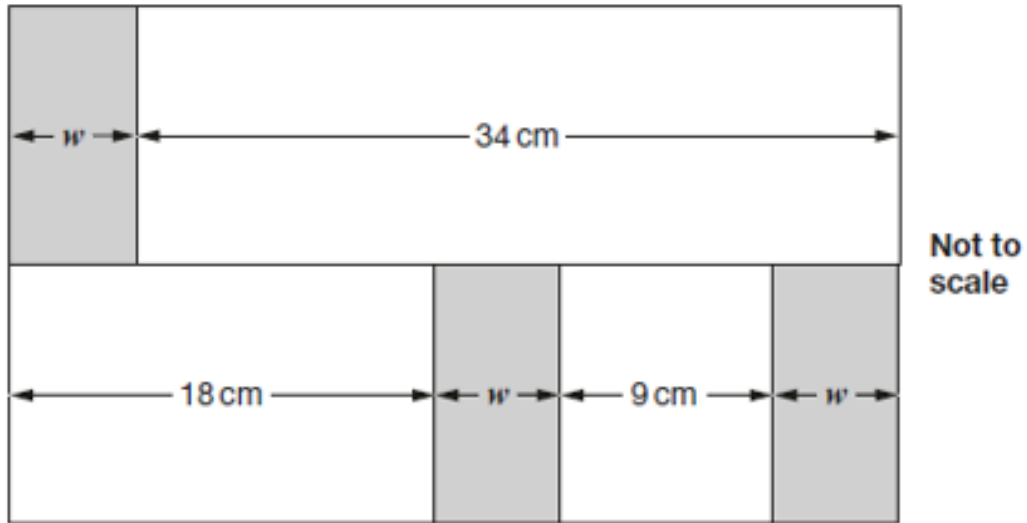


Complete the **rule** for the number pattern.

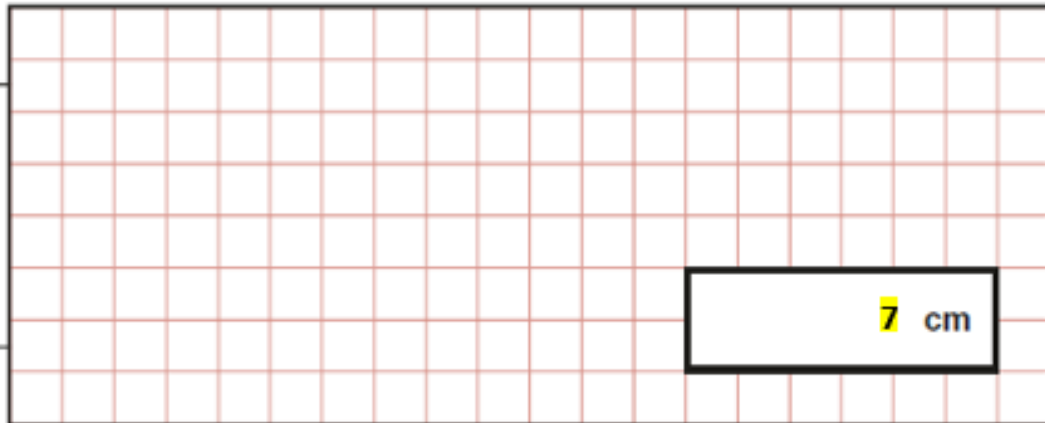
$$b = \boxed{10} \times a - \boxed{1}$$

- ▶ Look at the difference between the answers, and if this is a constant difference, then we know this is what we have to multiply 'a' by.
- ▶ We then need to adjust by adding or subtracting a number - in this case, we need to subtract 1.
- ▶ Once you have completed the formula, always try it again to make sure it works.

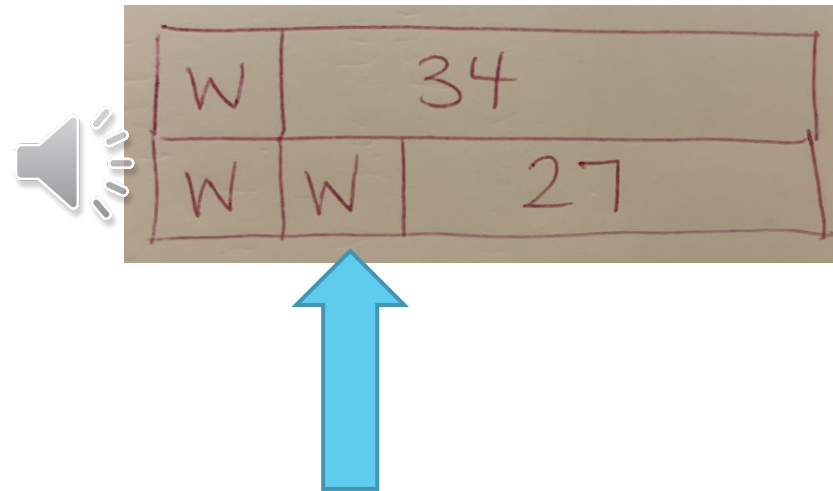
In this diagram, the shaded rectangles are all of equal width (w).



Calculate the width (w) of one shaded rectangle.



- ▶ The diagram is already set up as a bar model - this can really help to solve the problem, by making a slight adjustment
- ▶ A possible bar model to use to represent the problem:



- ▶ Much easier to visualise that the 'w' is the difference between 27 and 34, so the answer is 7cm

Miss Mills is making jam to sell at the school fair.

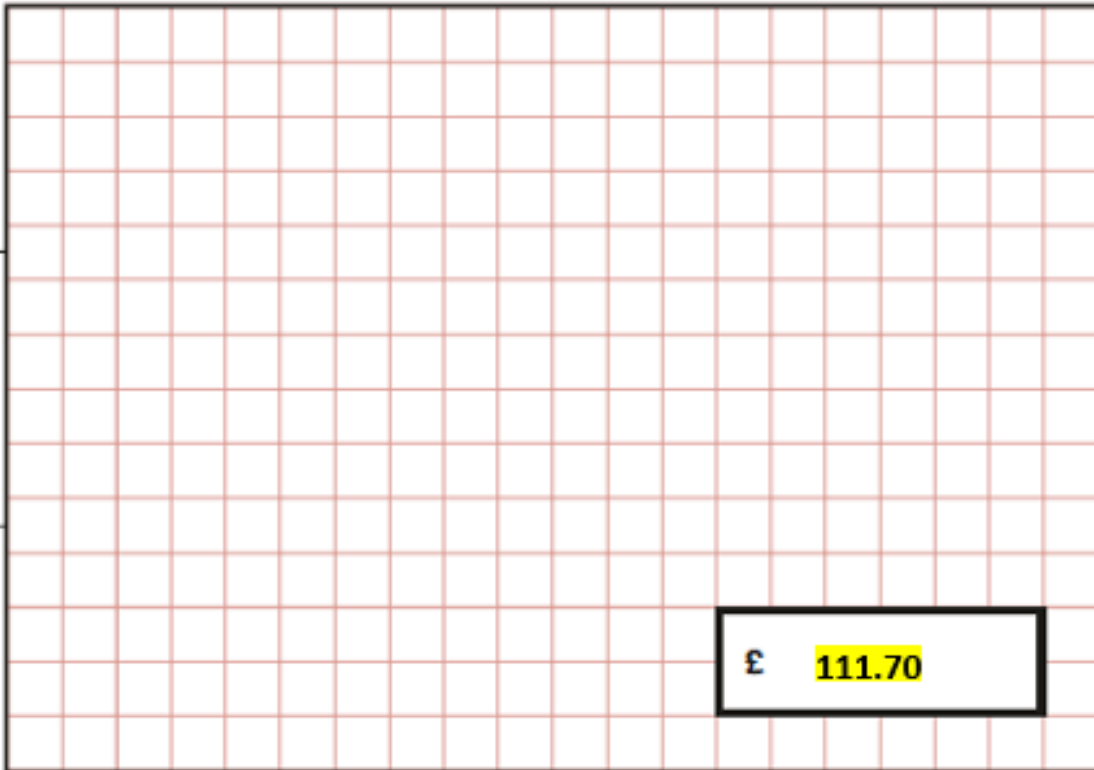
Strawberries cost £7.50 per kg.

Sugar costs 79p per kg.

10 glass jars cost £6.90

She uses 12kg of strawberries and 10kg of sugar to make 20 jars full of jam.

Calculate the total cost to make 20 jars full of jam.



£ 111.70

$$12\text{kg} \times £7.50 = £90.00$$

$$10\text{kg} \times £0.79 = £7.90$$

$$2 \times £6.90 = £13.80$$



$$£90.00 + £7.90 + £13.80 =$$

£111.70

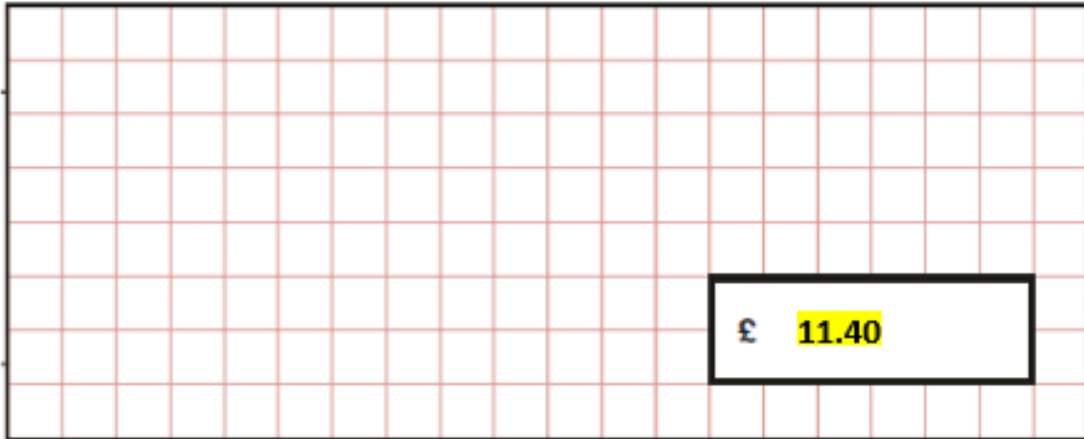
Lara had some money.

She spent £1.25 on a drink.

She spent £1.60 on a sandwich.

She has **three-quarters** of her money left.

How much money did Lara have to **start with**?



$$£1.25 + £1.60 = £2.85$$

$$£2.85 = \text{one quarter}$$

$$£2.85 \times 4 = \underline{\underline{£11.40}}$$



Money
spent
(£2.85)

Money left
(3 x £2.85)