

Cupcake Recipe - Serves 11

110g/4oz butter or margarine

110g/4oz caster sugar

2 free-range eggs, lightly beaten

1 tsp vanilla extract

110g/4oz self-raising flour

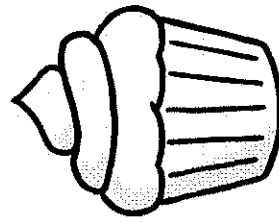
1-2 tbsp milk

For the buttercream icing

140g/5oz butter, softened

1-2 tbsp milk

280g/10oz icing sugar



Gingerbread Recipe - Serves 10

350g/12oz plain flour

1 tsp bicarbonate of soda

2 tsp ground ginger

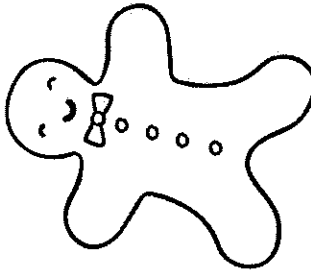
1 tsp ground cinnamon

125g/4½oz butter

175g/6oz light soft brown sugar

1 free-range egg

4 tbsp golden syrup



Cupcake Recipe Questions

1. How many grams of butter would be in each cupcake?

10g

2. How many grams of caster sugar would be in 3 cupcakes?

30g

3. How many eggs would be needed to make 22 cupcakes?

4

4. How many grams of icing sugar would be needed to make

44 cupcakes? 560g

Gingerbread Recipe Questions

1. How many tablespoons of golden syrup would be needed to make 5 servings? 2

2. If 1 tbsp contains roughly 15ml of liquid, how many ml of golden syrup does the recipe contain?

60ml

3. The recipe uses 125g butter. How many grams would be needed to make 1 serving? 12.5

4. What fraction of an egg would be in each serving? 1/10

Cupcake Recipe - Serves 15

150g/5oz butter or margarine 2-3 tbsp milk
 240g/8½oz icing sugar

150g/5oz caster sugar

3 free-range eggs, lightly beaten

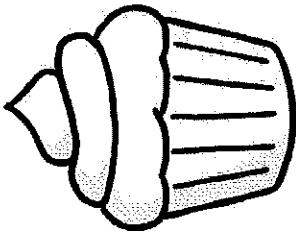
1 1/2 tsp vanilla extract

150g/5oz self-raising flour

2-3 tbsp milk

For the buttercream icing

170g/6oz butter, softened



Gingerbread Recipe - Serves 15

525g/18½oz plain flour

1.5 tsp bicarbonate of soda

3 tsp ground ginger

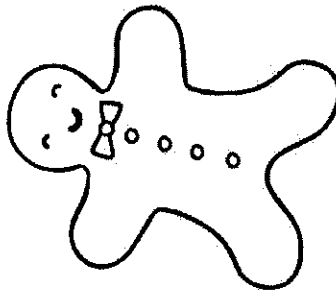
1.5 tsp ground cinnamon

180g/6½oz butter

240g/8½oz light soft brown sugar

2 free-range eggs

6 tbsp golden syrup



Cupcake Recipe Questions

1. How many grams of butter would be in 4 cupcakes? 40g

2. How many grams of caster sugar would be in 10 cupcakes? 100g

3. How many eggs would be needed to make 25 cupcakes? 5

4. How many grams of icing sugar would be needed to make 35 cupcakes? 560g

5. Looking at the equivalent measurements, how many grams are there roughly in 1oz? 30g

Gingerbread Recipe Questions

1. How many tablespoons of golden syrup would be needed to make 5 servings? 2

2. If 1 tbsp contains roughly 15ml of liquid, how many ml of golden syrup would you need to make 20 servings? 120 ml

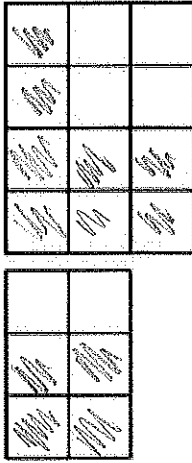
3. The recipe uses 180g butter. How many grams would be needed to make 1 serving? 12g

4. What fraction of an egg would be in each serving? 2/15

5. How much flour would be needed to make 25 servings? 875g

Colour the grids according to the ratio then identify the fraction of each colour.

Colour 2 red to 1 blue



$\frac{4}{6}$ red

$\frac{2}{6}$ blue

$\frac{8}{12}$ red

$\frac{4}{12}$ blue

Colour 3 blue to 2 red



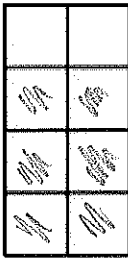
$\frac{6}{10}$ blue

$\frac{4}{10}$ red

$\frac{9}{15}$ blue

$\frac{6}{15}$ red

Colour 3 blue to 1 red



$\frac{6}{8}$ blue

$\frac{2}{8}$ red

$\frac{12}{16}$ blue

$\frac{4}{16}$ red

Colour 4 blue to 1 red



$\frac{8}{10}$ blue

$\frac{2}{10}$ red

$\frac{12}{15}$ blue

$\frac{3}{15}$ red

Colour 5 red to 2 blue



$\frac{10}{14}$ red

$\frac{4}{14}$ blue

$\frac{15}{21}$ red

$\frac{6}{21}$ blue

3. For each grid write the ratio as you see it, then write the ratio in its simplest form. Show your working out. The first one is done for you.

<p>a.</p> <p>shaded to blank 4:12</p> <p>$4 = 1$ $12 = 3$</p> <p>1:3</p>	<p>c.</p> <p>shaded to blank 8:12</p> <p>$8 = 4$ $12 = 3$</p> <p>2:3</p>
<p>b.</p> <p>shaded to blank 9:6</p> <p>$9 = 3$ $6 = 2$</p> <p>3:2</p>	<p>d.</p> <p>shaded to blank 6:12</p> <p>$6 = 1$ $12 = 2$</p> <p>1:2</p>

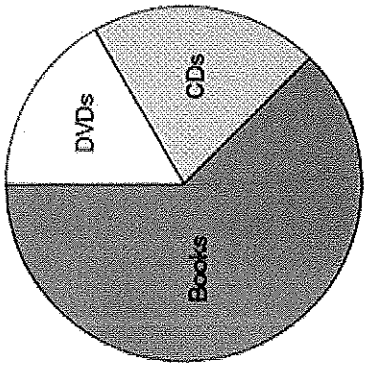
5. In each row, draw a circle around the ratios which are equivalent to the first ratio:

a. 2:3	1:2	4:6	8:12	3:8	10:15
b. 4:5	12:15	2:4	8:10	40:50	3:4
c. 3:4	2:3	9:12	7:11	15:20	6:9
d. 6:7	24:28	12:16	12:14	60:70	35:30
e. 5:2	10:4	30:12	3:1	40:16	15:6
f. 3:5	2:3	10:6	6:10	30:60	12:16

Q1.

A shop sells books, CDs and DVDs.

This pie chart shows the sales of each in one week.



Estimate the **fraction** of the total sales that were DVDs.

$\frac{1}{6}$

accept $\frac{1}{5} \rightarrow \frac{1}{7}$

1 mark

In this week, 200 CDs were sold.

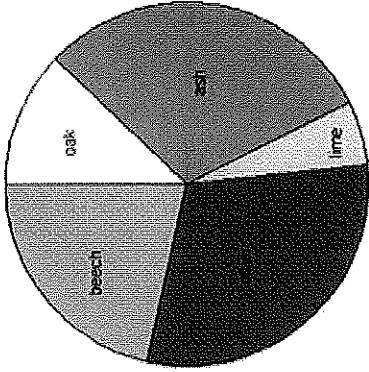
Estimate how many books were sold.

answer in range
500 - 600

1 mark

Q2.

Class 6 did a survey of the number of trees in a country park.
This pie chart shows their results.



Estimate the **fraction** of trees in the survey that are oak trees.

$\frac{1}{8}$

accept $\frac{1}{7} \rightarrow \frac{1}{6}$

1 mark

The children counted 60 ash trees.

Use the pie chart to estimate the **number** of beech trees they counted.

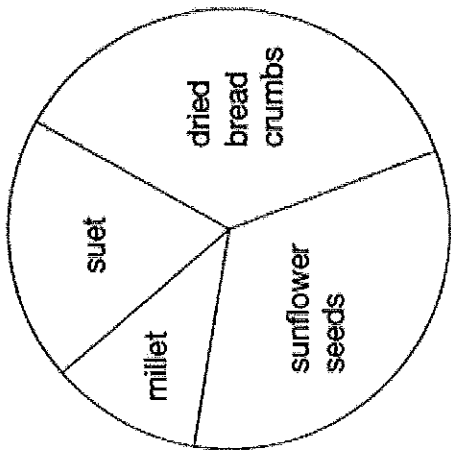
40

accept
35-45

1 mark

Q3.

This pie chart shows the ingredients to make a food mixture for wild birds.



Estimate the **percentage** of mixture that is suet.

accept 15.22%

20 %

1 mark

Mina uses 100 grams of millet in the mixture.

Estimate how many grams of sunflower seeds she should use.

(accept 300-350g)

325 g

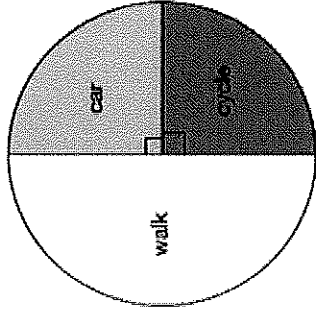
1 mark

Q4.

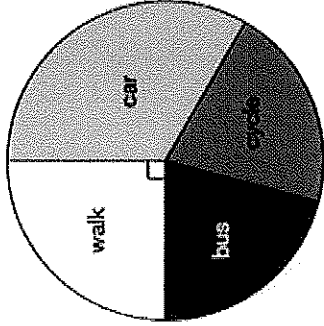
Megan asked children from two different schools,

'How do you travel to school?'

Here are her results.



Foxwood school
80 children



Midtown school
240 children

Megan says,

'The number of children walking to Foxwood school is more than the number walking to Midtown school.'

Is she correct?

Circle **Yes** or **No**.

Yes / No

Explain in your book how you know.

1/2 of 80 is 40 chn at Foxwood

1/4 of 240 is 60 chn at Midtown

so she is wrong.



1. What is the ratio of black tiles to white tiles?
- 1a. What is the ratio of white tiles to black tiles?
2. Using that ratio, how many white tiles would there be if there were 12 black tiles?

1. 2:3

1a. 3:2

2. 18 white tiles

3. A recipe for burgers uses a ratio of 3:5 for onions to mixed herbs. There are 15 grams of onions, how many grams of mixed herbs are there?

3. 25g

4. A grape picker eats 3 grapes for every 9 he puts in the basket. He picks 48 grapes, how many did he eat?

4. $48 \div 12 = 4$ $3 \times 4 = 12$ grapes

5. A decorator paints 21 tiles green and 28 tiles blue. What is the ratio for this in its simplest form?

5. $21:28 = 7 = \frac{3:4}{3:4}$

6. In a classroom there are 6 pencils for every child. There are 28 children in the class, how many pencils are there?

6. $28 \times 6 = 168$ pencils

7. There are 5 bananas for every 7 apples. There are 35 apples, how many bananas are there?

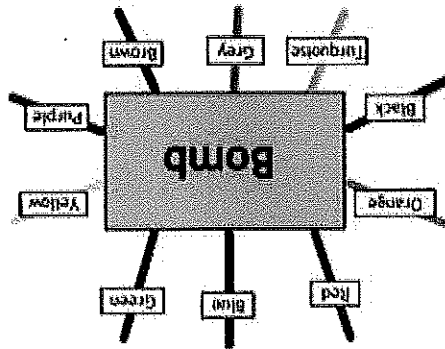
7. 25 bananas

8. In a bag of sweets there are 6 cola bottles for every 9 milk bottles. There were 18 cola bottles, how many milk bottles were there?

27 milk bottles

Defuse the Bomb - Basic Ratio and Proportion

The Mathematician, a notorious terrorist has planted a bomb. You must defuse that bomb using the mathematical clues he's left.



Answer the questions, then cut the coloured wires in the order that the answers appear, using the table below:

Red	Blue	Green	Yellow	Purple	Brown	Grey	Turquoise	Black	Orange
2:5	18	2:3	28	35	2:1	20	5:6	30	4:3

Here are the clues that show which order to cut the wires:

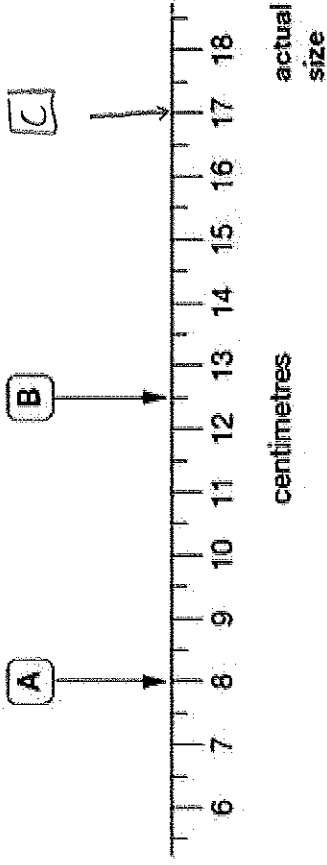
1	In a class there are 10 boys and 15 girls. Write the ratio of boys to girls in its simplest form. 2 : 3
2	The ratio of black beads to white beads on a necklace is 3:1. If there are 6 white beads on my necklace, how many black beads are there?
3	Debbie has 24 ten pence pieces and 12 five pence pieces in her piggy bank. What is the ratio of 10p to 5p pieces in its simplest form?
4	The ratio of adults to children on a picnic is 2:7. If there are 10 adults on the picnic, how many children are there?
5	A recipe that makes enough cake for 8 people requires 200g of flour. How many people will a cake containing 700g of flour feed?
6	A football team won 8 games and lost 6 games in a season. What is the ratio of games won to games lost in its simplest form?
7	Adam is 9 years old and Billy is 11 years old. What will be the ratio of Adams' age to Billy's age in exactly one year's time? Give your answer in its simplest form.
8	It takes 4 workers 10 days to lay the foundations for a house. How long would it take 2 workers?

Order to cut the wires:

Green
Blue
Brown
Purple
Yellow
Orange
Turquoise
Grey

Q1.

Here is part of a centimeter scale, with two points marked.



What is the distance between point A and point B?

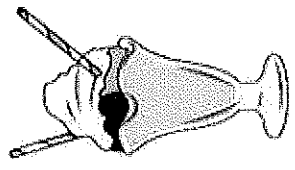
4.5 cm

Point C is twice as far from point A as it is from point B. On the scale above, mark one place where point C could be.

Q2.

Here are the ingredients for chocolate ice cream.

cream	400 ml
milk	500 ml
egg yolks	4
chocolate	120 g
sugar	100 g



Stefan has only 300 ml of cream to make chocolate ice cream.

How much chocolate should he use?

Show your method

300 : 400	
$\times 30$	$3 : 4$
90 : 120	$\times 30$
	90 g

Children were asked to vote for cycling, swimming or football as their favourite weekend activity.

Fraction	Percentage
$\frac{1}{2}$ children prefer swimming	50%
$\frac{3}{10}$ of children prefer cycling	30%
The rest prefer football	20%

Children were asked to vote for dogs, cats or rabbits as their ideal pet.

Fraction	Percentage
$\frac{1}{2}$ prefer dogs	50%
$\frac{1}{5}$ prefer cats	20%
The rest prefer rabbits	30%

Tues ALL

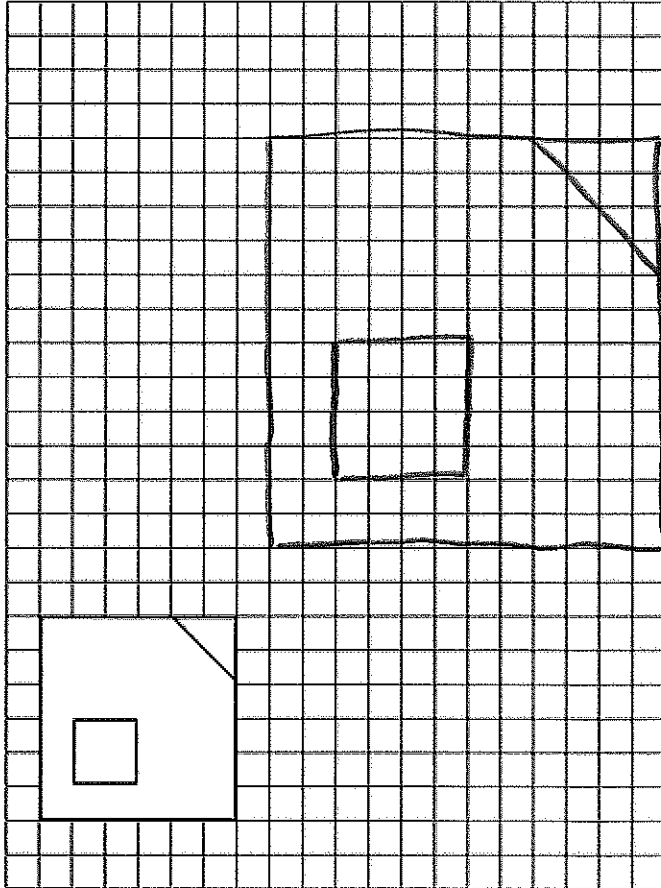
Children were asked to vote for oranges, bananas or apples as their favourite fruit.

Fraction	Percentage
$\frac{2}{5}$ children prefer bananas	40%
$\frac{3}{10}$ of children prefer apples	30%
The rest prefer oranges	30%

Generate your own question and ask 10 classmates:

Fraction	Percentage

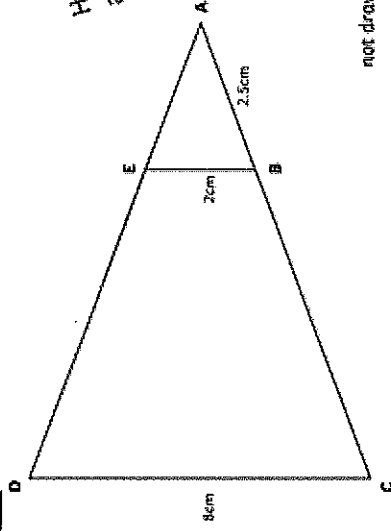
1. George has produced a logo design for his dad's company. They want to use the design, but have to enlarge it by a scale factor of two. Draw the enlarged shape below and explain how you completed it:



How I enlarged the design:

Double all dimensions

2. This picture shows two triangles: triangle ACD and triangle ABE . They are similar triangles. Calculate the length of side AD . Explain how you worked it out.



Hint: these are isosceles triangles.

not drawn to scale

Length of AD 10cm

My reasoning for this:

$$CD : BE$$

$$8 : 2$$

$$4 : 1$$

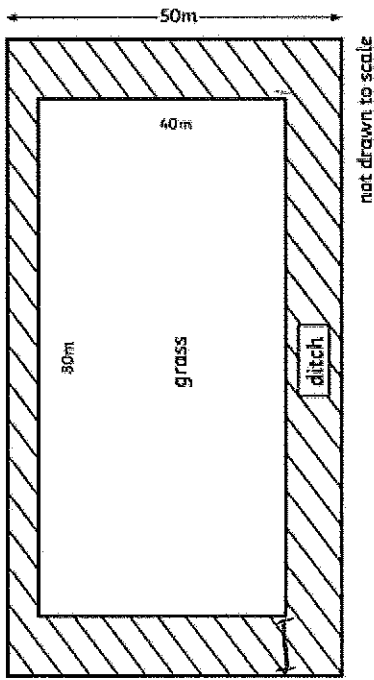
$$AC \times 2.5 \rightarrow 10$$

$$AB \times 2.5 \rightarrow 2.5$$

$$AC = AD \text{ in isosceles } \triangle$$

$$\therefore AD = 10\text{cm}$$

1. Here are the dimensions of a field. The field has a grassed area in the middle, ditch around the grass and a fence around the outside of the ditch. The distance from the edge of the grass to the edge of the ditch is equal around the field. A farmer has another field which is an enlargement of this field by a scale factor of two (both grassed area and ditch are enlarged). How much fencing would the farmer need to put a fence around the outer edge of the ditch of the larger field? Explain how you worked this out.



Amount of fencing needed for the larger field 560 m

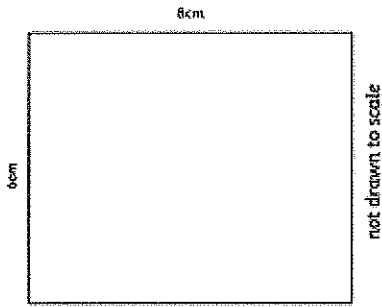
How I worked this out:

$$50 - 40 = \text{ditch on both sides} = 10\text{m}$$

$$80 + 10 = \text{grass + ditch} = 90\text{m}$$

$$\begin{aligned} \text{New field perimeter} &= 2 \times (50 + 50 + 90 + 90) \\ &= 2 \times 280 \\ &= 560\text{m} \end{aligned}$$

2. Enlarge this rectangle by a scale factor of 1.5 then calculate the area of the shape. Show how you worked it out:



Area of the rectangle

How I worked this out:

$$6 \times 1.5 = 9$$

$$8 \times 1.5 = 12$$

$$\begin{aligned} \text{Area} &= 9 \times 12 \\ &= 108 \end{aligned}$$

Check: area should be 1.5 x 1.5 bigger (2.25)
 $2.25 \times 8 \times 8 = 108$