Year 6 mathematics. *What you need to know.*

Number and Place Value

- Use negative numbers in context and calculate intervals across zero.
- Read, write, order and compare numbers up to 10 000000 and determine the value of each digit.

Place value:

'What is the value of the red digit?'

9,378,912

'The ___ represents ___.'
'The value of the ___ is ___'.

Comparing numbers with reasoning:

'What is the missing symbol (< > or =)? Explain why using place value.'

6,352,783 ◯ 6,357,283

206,312 ◯ 206,052

- Identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places.

Addition and Subtraction

- Solve addition and subtraction multi-step problems in contexts.

A hall has 1,250 seats.

At 7 pm, 880 seats are filled.

At 8 pm, there are 40 empty seats.

How many seats were filled between 7 pm and 8 pm?

Statistics

- Interpret and construct pie charts and line graphs and use these to solve problems.
- Calculate and interpret the mean as an average.

Seven children measured their heights.

Children	Height (cm)
Stefan	144
Lara	136
Olivia	142
Chen	143
Maria	152
Dev	148
Sarah	150

What is the mean height of the children?

Measurement

Convert between miles and kilometres.

Algebra

- Express missing number problems algebraically. Find pairs of numbers that satisfy number sentences involving two unknowns.
- Enumerate all possibilities of combinations of two variables
- Use simple formulae. Recognise when it is possible to use formulae for area and volume of shapes.

Generate and describe linear number sequences.

Ratio

- Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts.

Ingredients for 2 smoothies.

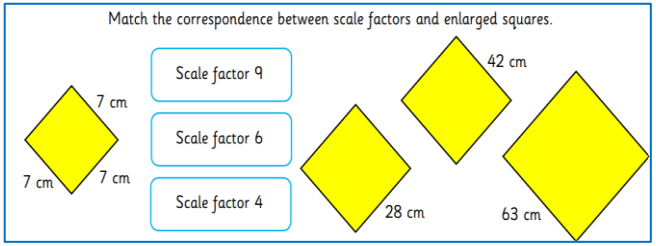
number of smoothies:	2
number of strawberries:	20
number of bananas:	1
amount of yoghurt (ml):	200

What do you need to make 20 smoothies?

What do you need to make 1 smoothie?

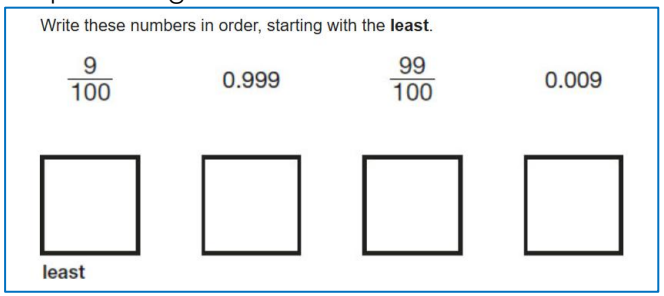
If you use 1 litre of yoghurt, how many strawberries will you need?

- Solve problems involving similar shapes where the scale factor is known or can be found.

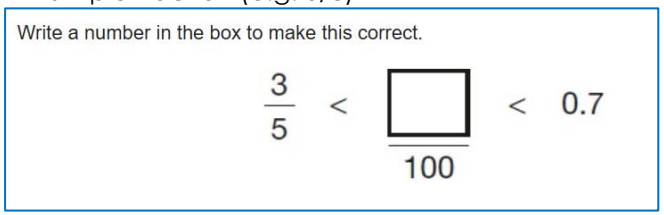


Fractions, Decimal and Percentages

- Compare and order fractions decimals and percentages



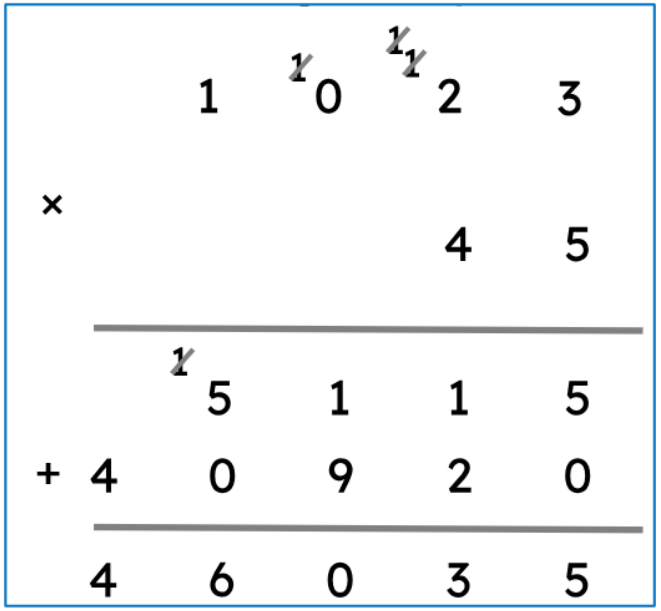
- Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.
- Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. 3/8)



- Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.
- Add, subtract and multiply fractions with different denominators and mixed numbers

Multiplication and Division

- Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.



- Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division.

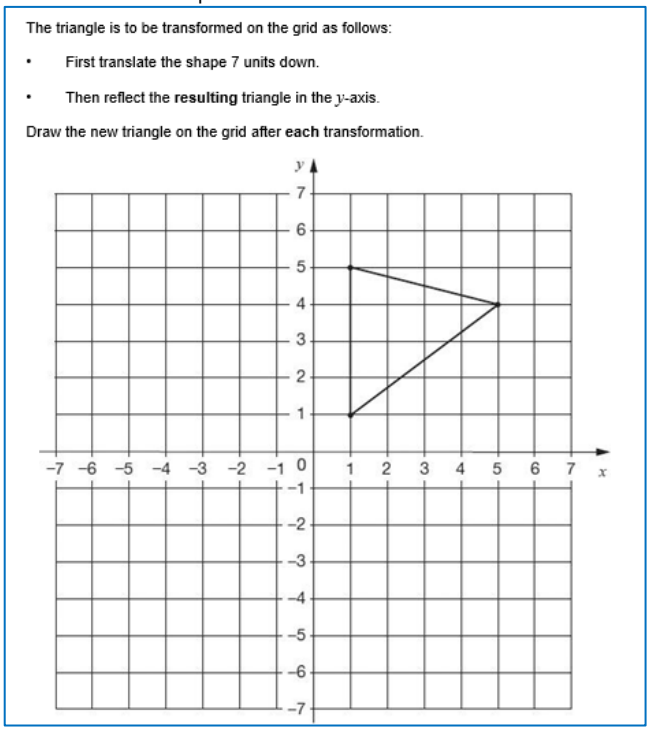
Geometry

Shape

- Recognise, describe and build simple 3-D shapes, including making nets.
- Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.

Position and Direction

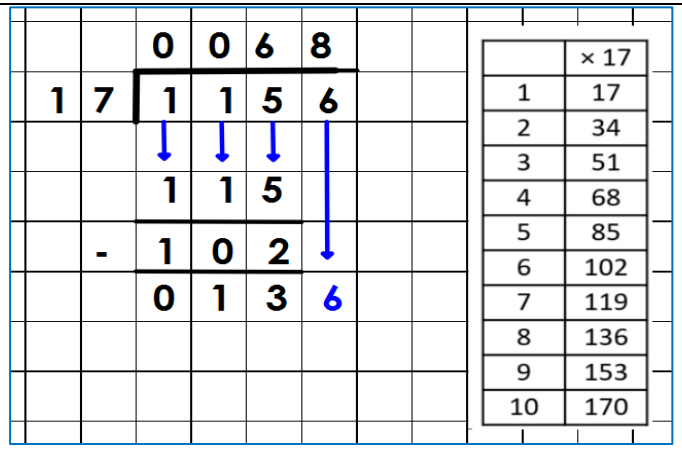
- Describe positions on the full coordinate grid (all four quadrants).
- Draw and translate simple shapes on the coordinate plane and reflect them in the axes.



A cinema sells tickets at three different prices.

- $\frac{1}{20}$ of the tickets are price A.
- $\frac{3}{5}$ of the tickets are price B.
- The rest of the tickets are price C.

What fraction of the tickets are price C?



	× 17
1	17
2	34
3	51
4	68
5	85
6	102
7	119
8	136
9	153
10	170

- Identify common factors, common multiples and prime numbers
- Use their knowledge of the order of operations to carry out calculations involving the four operations