

## Year 6 Reasoning & Problem-Solving Examples

### Different Ways

How can 5380 be made using 10, 100 and 1000 counters?

What are the **fewest** counters that can be used?

1000

What are the **most** counters that can be used?

Find two ways of making 5380 using **25 coins**.

10

100

### Explore

I think of a 4-digit number. All the digits are different.

The sum of its digits is 13.

What is the **smallest** and the **largest** the number could be?

**Example:** The sum of the digits for 2541 is 12  
 $2+5+4+1=12$

### Agree or Disagree?

Halving a negative number can make it positive

Halving a negative numbers always makes it larger

### Correct or Not Correct?

$$\begin{array}{r} 8469 \\ + 597 \\ \hline 9066 \\ 11 \end{array}$$

$$\begin{array}{r} 7468 \\ + 523.5 \\ \hline 12703 \\ 11 \end{array}$$

$$\begin{array}{r} 6992 \\ + 3447 \\ \hline 10339 \\ 11 \end{array}$$

Explain the mistakes.

### I know... so...

1 apple and 2 bananas cost £1

 = £1

2 apples and 1 banana cost £1.10

 = £1.10

3 bananas cost

1 banana costs

3 apples cost

1 apple costs

An apple costs  more than a banana.

### Part-Complete Examples

$$\begin{array}{r} 73 \\ \times 32 \\ \hline 14\ \square \\ \square\square 90 \\ \hline \square\square 3\square \end{array}$$

$$\begin{array}{r} 28 \\ \times 24 \\ \hline \square\square 2 \\ \square\square 0 \\ \hline \square\square 2 \end{array}$$

$$\begin{array}{r} 86 \\ \times 43 \\ \hline \square\square 8 \\ \square\square 1\square \\ \hline \square\square\square\square \\ \hline \square\square\square\square \end{array}$$

### Small Difference Questions

$480 \div 8 = 60$

$258 \div 3 = 86$

$496 \div 8 = \square$

$258 \div 6 = \square$

$496 \div 4 = \square$

$270 \div 6 = \square$

$536 \div 4 = \square$

$210 \div 6 = \square$

$5360 \div 40 = \square$

$420 \div 3 = \square$

### Explain

A bakery is making 200 cupcakes.

They have 1.5kg of butter, 2kg sugar, 2.5kg flour and 26 eggs.

To make 200 cupcakes, the bakery will need to buy more of which ingredients?

Explain how you know.

#### Cupcake Recipe

Makes 25 cupcakes

200g butter

250g sugar

300g flour

4 eggs