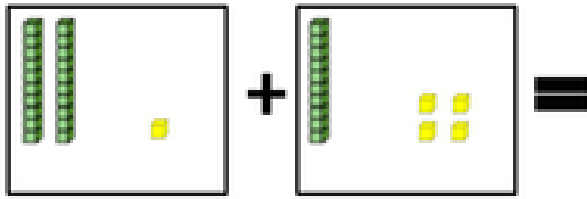


Addition

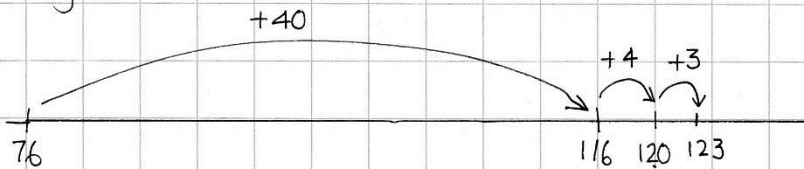


Mental methods using partitioning:

eg

$$\begin{aligned}
 76 + 47 &= (70 + 40) + (6 + 7) \\
 &= 110 + 13 \\
 &= 123
 \end{aligned}$$

Using a blank number line:



Vertical layout ("ones/units" first):

eg

	7	6	
+	4	7	
	1	3	"six add seven"
	1	1	"seventy add forty"
	1	2	3

Compact written method:

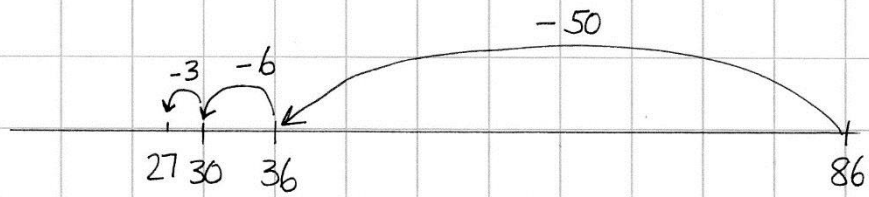
eg

	7	6
+	4	7
	1	2
	x	x

Subtraction

Subtraction as "taking away" using the number line:

eg $86 - 59$



Multiplication

Multiplication as repeated addition:													
eg	7	+	7	+	7	=	3	x	7	(or	7	x	3)

Commutative Property
 $5 \times 3 = 15$

Repeated Addition
 $3 + 3 + 3 + 3 + 3 = 15$

Groups of: $3 \times 5 = 15$ An Array

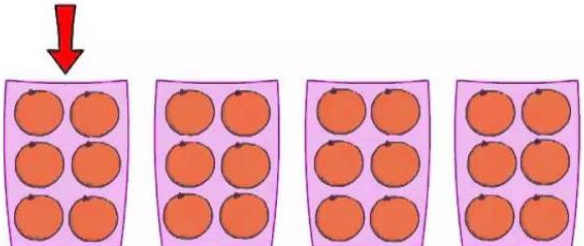
3 groups of 5

Division strategies

DIVISION BY SHARING

Examples

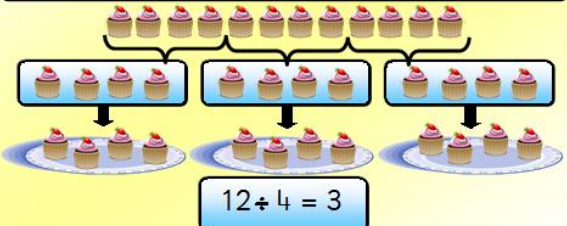
(a) Divide these 24 oranges equally between 4 families.



The diagram shows four identical purple rectangular baskets arranged in a row. Each basket contains six orange circles, arranged in two columns of three. A large red arrow points downwards from the top left towards the first basket.

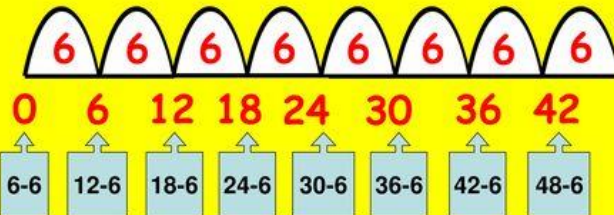
Grouping

Gordon has 12 cakes. He wants to put 4 cakes on each plate.
How many plates will he need?



The diagram shows 12 small cakes with white frosting and red decorations. They are arranged in a single row. Brackets group them into three groups of four. Below each group, a blue box contains four cakes. Arrows point from these boxes to three plates, each containing four cakes. Below the plates, a blue box contains the equation $12 \div 4 = 3$. The entire diagram is framed with a decorative border of small colorful crosses.

$48 \div 6 = 8$



The diagram shows a sequence of numbers: 0, 6, 12, 18, 24, 30, 36, 42. Above each number is a white arch containing the number 6. Below each number is a blue box containing a subtraction equation: 6-6, 12-6, 18-6, 24-6, 30-6, 36-6, 42-6, 48-6. Arrows point upwards from each equation to its corresponding number.

How many 6's have been subtracted?
That means, there are 8 sixes in 48!