



Key concepts and questions

Which operation should be used?

There will be key words within the question to help you. For multiplication, *multiply, by, times, lots of, equal groups, groups of, multiplied by, per*. For division, *divide, each, equal parts, evenly, split, share, group*.

What order should operations be completed in?

Operations must be completed in a certain order. Brackets, division, multiplication, addition then subtraction. E.g. $2 + 3 \times 5 - 7 + (3 \times 2)$. Solve the brackets first: $2 + 3 \times 5 - 7 + 6$. Then do the multiplication: $2 + 15 - 7 + 6$. When only addition and subtraction are left, work out from left to right: $2+15=17$ $17-7=10$ $10+6=16$

Key Vocabulary

remainder	multiple	factor	Inverse
order of operations	Brackets, division, multiplication, addition, subtraction.		
prime factor	A factor that is a prime number.		
prime number	Divides by only itself and one.		
composite number	Divides by itself, one and other integers.		
squared (x^2)	Multiply a number by itself e.g. $8 \times 8 = 64$. 64 is a square number.		
cubed (x^3)	Multiply a number by itself 3 times. E.g. $2 \times 2 \times 2 = 8$ 8 is a cube number.		
commutative	Multiplication can be done in any order e.g. 6×4 and 4×6 equal 24.		

Representations

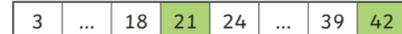
Number lines

Help to identify common factors and multiples.

Factors of 48



Multiples of 3



Factors of 30



Multiples of 7



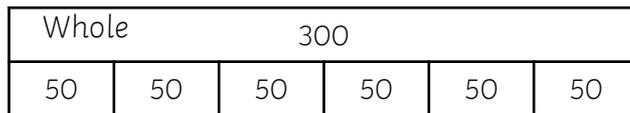
Common factors: 1, 2, 3, 6

Common multiples: 21, 42...

Bar models

$50 \times 6 = 300$

$300 \div 6 = 50$



Parts

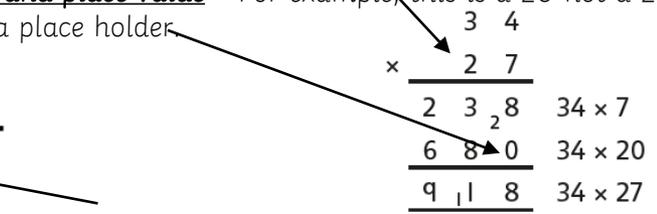
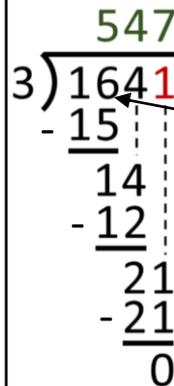
Arrays



$3 \times 6 = 18$ $6 \times 3 = 18$
 $18 \div 6 = 3$ $18 \div 3 = 6$

Making connections

Partitioning and place value – For example, this is a 20 not a 2, so there needs to be a place holder



Ten and a hundred times bigger and smaller
 This is $1600 \div 3$ but it is made 100 times smaller to $16 \div 3$
 Then, $4 \div 3$ is completed instead of $40 \div 3$

Efficient methods

Use known multiplication and division facts.
 $2 \times 8 = 16$ so $20 \times 8 = 160$ and $200 \times 8 = 1,600$
 $6 \div 2 = 3$ so $60 \div 2 = 30$ and $60 \div 20 = 3$