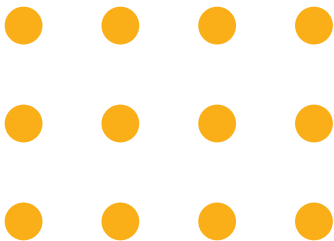
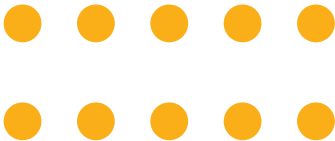
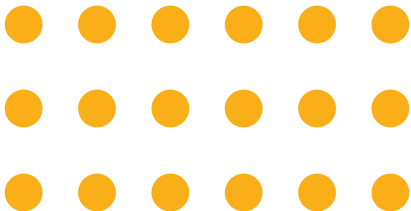
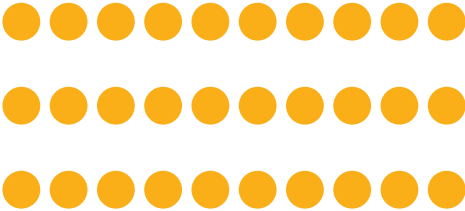
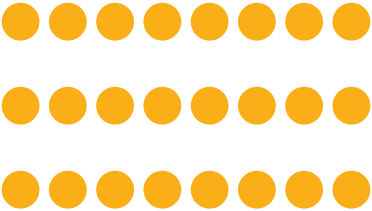
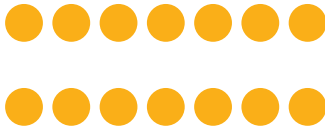
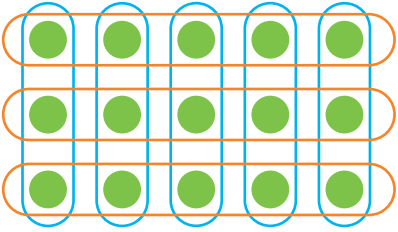


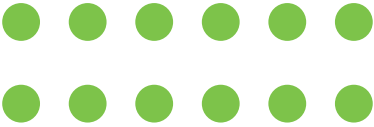
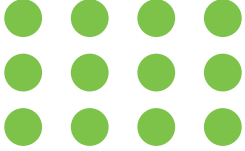
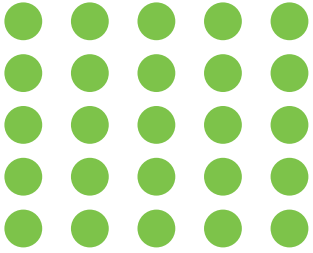


Array for Maths!

Write two multiplication sentences for each of these arrays. The first one has been done for you.

		
$4 \times 3 = 12$		
$3 \times 4 = 12$		
		

Write two division sentences for each of these arrays. Try using coloured pencils to group the dots.

		
$15 \div 5 = 3$		
$15 \div 3 = 5$		
		

What do you notice about the last one? Talk to your helper.

Commutativity

The commutative property of multiplication means that when two numbers are multiplied together it doesn't matter which one comes first because the product will be the same. Division does not have commutativity.

$$4 \times 2 = 2 \times \underline{\quad\quad}$$

$$1 \times 3 = 3 \times \underline{\quad\quad}$$

$$3 \times 5 = 5 \times \underline{\quad\quad}$$

$$3 \times 10 = 10 \times \underline{\quad\quad}$$

$$7 \times 10 = 10 \times \underline{\quad\quad}$$

$$11 \times 3 = 3 \times \underline{\quad\quad}$$

Fill in the missing numbers:

$$\underline{\quad\quad} \times 2 = 2 \times 5$$

$$5 \times 2 = \underline{\quad\quad}$$

$$2 \times \underline{\quad\quad} = \underline{\quad\quad}$$

$$\underline{\quad\quad} \times 3 = 3 \times 8$$

$$3 \times 8 = \underline{\quad\quad}$$

$$8 \times \underline{\quad\quad} = \underline{\quad\quad}$$

$$10 \times 2 = 2 \times \underline{\quad\quad}$$

$$\underline{\quad\quad} \times \underline{\quad\quad} = \underline{\quad\quad}$$

$$\underline{\quad\quad} \times \underline{\quad\quad} = \underline{\quad\quad}$$

$$4 \times 6 = \underline{\quad\quad} \times 4$$

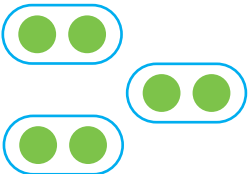

$$\underline{\quad\quad} \times \underline{\quad\quad} = \underline{\quad\quad}$$

$$\underline{\quad\quad} \times \underline{\quad\quad} = \underline{\quad\quad}$$

Challenge: Ryan has 3 boxes with 5 cars in each. His friend Sam has 5 boxes with 3 cars in each. Who has the most cars?

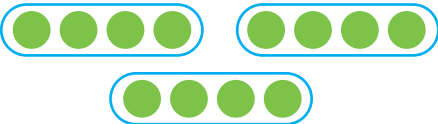




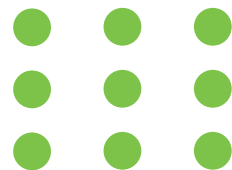

Multiplication

Complete the table. The first one is done for you.

Factors	Repeated Addition	Groups	Array	Related Calculation (commutative property)	Product
3×2	$2+2+2$			2×3	6
2×5					
3×10					
6×2					
4×3					
3×5					
2×10					



Division

Complete the table. The first one is done for you.

Division	Sharing	Answer	Related Multiplication Facts
$12 \div 3$		4	$3 \times 4 = 12$ $4 \times 3 = 12$
$8 \div 2$			
$10 \div 5$			
$20 \div 10$			
$12 \div 2$			
$9 \div 3$			
$15 \div 5$			

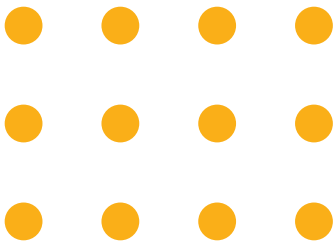
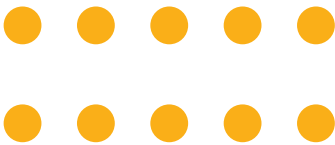
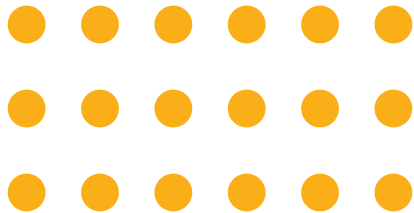
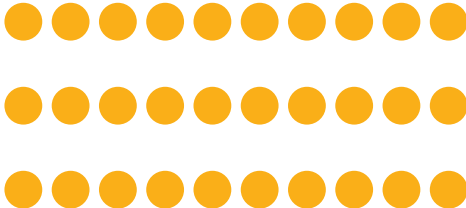
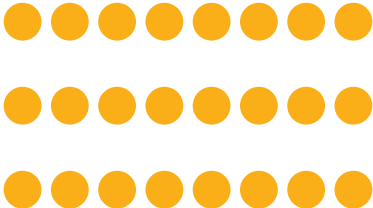
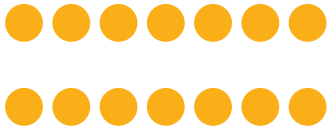
Fill the Gaps

Emma and James are visiting the circus. Can you work out the answers to these problems for them? Use arrays, sharing, objects, or anything else that may help you. Don't forget to look for the important information!

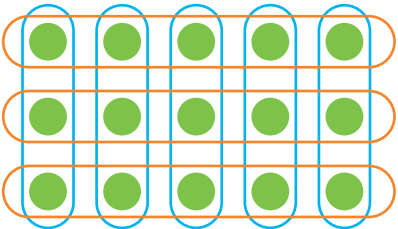
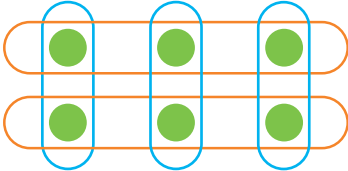
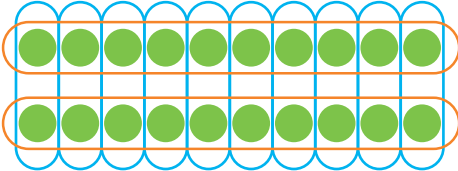
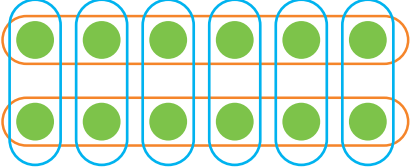
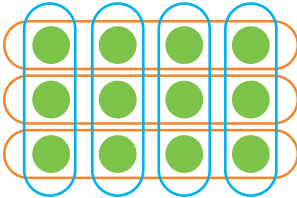
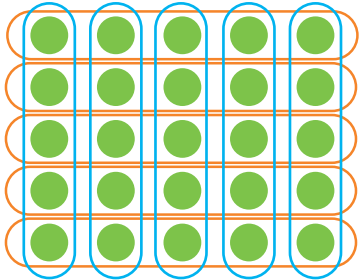
<p>Each children's ticket costs £5. How much do the 2 children pay altogether?</p> <div></div>	<p>Each section of the circus has 10 seats. If 40 people arrive, how many sections will they need?</p> <div></div>	<p>There are 3 clowns and each clown juggles 4 balls. How many balls altogether?</p> <div></div>
<p>There are 20 sweets in Emma's packet. If she shares them equally with James, how many sweets will they have each?</p> <div></div>	<p>9 trapeze artists swing on 3 swings. How many trapeze artists are on each swing?</p>  <div></div>	<p>The motorbike riders are next. There are 18 wheels altogether. How many motorbikes are there?</p>  <div></div>
<p>The circus dancers wear feathers in their hair. There are 5 dancers and each dancer wears 3 feathers. How many feathers altogether?</p> <div></div>	<p>There are 7 acrobats. Each acrobat does 5 tumblers. How many tumblers altogether?</p> <div></div>	<p>At the end of the show, 10 performers take 30 bows altogether. How many bows does each performer take?</p> <div></div>

Array for Maths! Answers

Write two multiplication sentences for each of these arrays. The first one has been done for you.

		
$4 \times 3 = 12$	$2 \times 5 = 10$	$3 \times 6 = 18$
$3 \times 4 = 12$	$5 \times 2 = 10$	$6 \times 3 = 18$
		
$3 \times 10 = 30$	$8 \times 3 = 24$	$7 \times 2 = 14$
$10 \times 3 = 30$	$3 \times 8 = 24$	$2 \times 7 = 14$

Write two division sentences for each of these arrays. Try using coloured pencils to group the dots.

		
$15 \div 5 = 3$	$6 \div 2 = 3$	$20 \div 2 = 10$
$15 \div 3 = 5$	$6 \div 3 = 2$	$20 \div 10 = 2$
		
$12 \div 6 = 2$	$12 \div 4 = 3$	$25 \div 5 = 5$
$12 \div 2 = 6$	$12 \div 3 = 4$	

What do you notice about the last one? Talk to your helper.

Commutativity Answers

The commutative property of multiplication means that when two numbers are multiplied together it doesn't matter which one comes first because the product will be the same. Division does not have commutativity.

$$4 \times 2 = 2 \times 4$$

$$1 \times 3 = 3 \times 1$$

$$3 \times 5 = 5 \times 3$$

$$3 \times 10 = 10 \times 3$$

$$7 \times 10 = 10 \times 7$$

$$11 \times 3 = 3 \times 11$$

Fill in the missing numbers:

$$5 \times 2 = 2 \times 5$$

$$5 \times 2 = 10$$

$$2 \times 5 = 10$$

$$8 \times 3 = 3 \times 8$$

$$3 \times 8 = 24$$

$$8 \times 3 = 24$$

$$10 \times 2 = 2 \times 10$$

$$2 \times 10 = 20$$

$$10 \times 2 = 20$$

$$4 \times 6 = 6 \times 4$$

$$4 \times 6 = 24$$

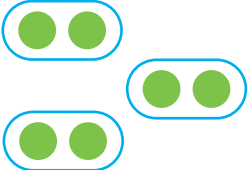

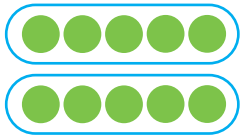
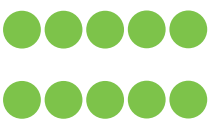
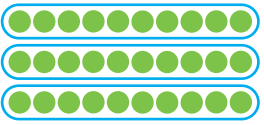

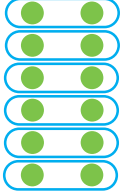

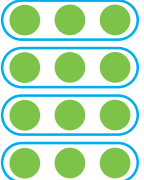
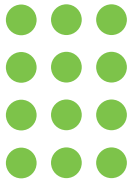
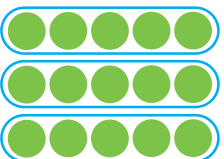
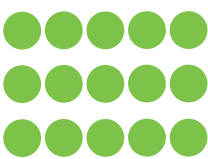
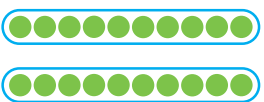

$$6 \times 4 = 24$$

Challenge: Ryan has 3 boxes with 5 cars in each. His friend Sam has 5 boxes with 3 cars in each. Who has the most cars?

$3 \times 5 = 15$ $5 \times 3 = 15$ They both have the same number of cars.

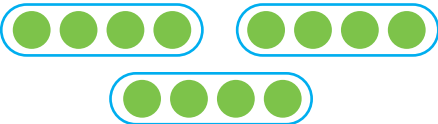

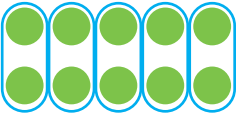
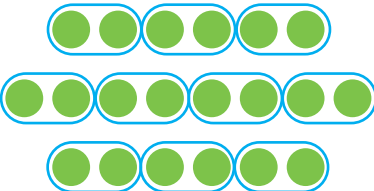
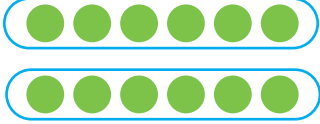
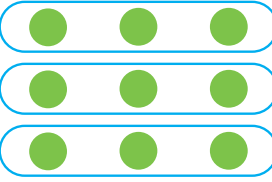
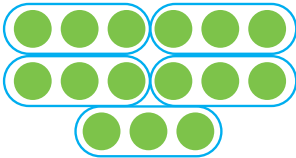
Multiplication Answers

Complete the table. The first one is done for you.

Factors	Repeated Addition	Groups	Array	Related Calculation (commutative property)	Product
3×2	$2+2+2$			2×3	6
2×5	$5 + 5$			5×2	10
3×10	$10 + 10 + 10$			10×3	30
6×2	$2 + 2 + 2 + 2 + 2 + 2$			2×6	12
4×3	$3 + 3 + 3 + 3$			3×4	12
3×5	$5 + 5 + 5$			5×3	15
2×10	$10 + 10$			10×2	20



Division Answers

Complete the table. The first one is done for you.

Division	Sharing	Answer	Related Multiplication Facts
$12 \div 3$		4	$3 \times 4 = 12$ $4 \times 3 = 12$
$8 \div 2$		4	$4 \times 2 = 8$ $2 \times 4 = 8$
$10 \div 5$		2	$5 \times 2 = 10$ $2 \times 5 = 10$
$20 \div 10$		2	$10 \times 2 = 20$ $2 \times 10 = 20$
$12 \div 2$		6	$6 \times 2 = 12$ $2 \times 6 = 12$
$9 \div 3$		3	$3 \times 3 = 9$
$15 \div 5$		3	$5 \times 3 = 15$ $3 \times 5 = 15$

Fill the Gaps Answers

Emma and James are visiting the circus. Can you work out the answers to these problems for them? Use arrays, sharing, objects, or anything else that may help you. Don't forget to look for the important information!

<p>Each children's ticket costs £5. How much do the 2 children pay altogether?</p> <p>£10</p>	<p>Each section of the circus has 10 seats. If 40 people arrive, how many sections will they need?</p> <p>4 sections</p>	<p>There are 3 clowns and each clown juggles 4 balls. How many balls altogether?</p> <p>12 balls</p>
<p>There are 20 sweets in Emma's packet. If she shares them equally with James, how many sweets will they have each?</p> <p>10 sweets</p>	<p>9 trapeze artists swing on 3 swings. How many trapeze artists are on each swing?</p>  <p>3 trapeze artists</p>	<p>The motorbike riders are next. There are 18 wheels altogether. How many motorbikes are there?</p>  <p>9 motorbikes</p>
<p>The circus dancers wear feathers in their hair. There are 5 dancers and each dancer wears 3 feathers. How many feathers altogether?</p> <p>15 feathers</p>	<p>There are 7 acrobats. Each acrobat does 5 tumblers. How many tumblers altogether?</p> <p>35 tumblers</p>	<p>At the end of the show, 10 performers take 30 bows altogether. How many bows does each performer take?</p> <p>3 bows</p>