Power Up

Complete the table.

×	9	12	3	6	10	7	8	11
10				60	100		80	
100	900		300					1,100
1,000		12,000				7,000		

I wonder how I can use multiplying by 10 to help me multiply by 100.

Let’s look at the 11 and 12 X table!

1 x 11 =	1 x 12 =
2 x 11 =	2 x 12 =
3 x 11 =	3 x 12 =
4 x 11 =	4 x 12 =
5 x 11 =	5 x 12 =
6 x 11 =	6 x 12 =
7 x 11 =	7 x 12 =
8 x 11 =	8 x 12 =
9 x 11 =	9 x 12 =
10 x 11 =	10 x 12 =
11 x 11 =	11 x 12 =
12 x 11 =	12 x 12 =

Let's look at the 11 and 12 X table!

1 x 11 = 11	1 x 12 = 12
2 x 11 = 22	2 x 12 = 24
3 x 11 = 33	3 x 12 = 36
4 x 11 = 44	4 x 12 = 48
5 x 11 = 55	5 x 12 = 60
6 x 11 = 66	6 x 12 = 72
7 x 11 = 77	7 x 12 = 84
8 x 11 = 88	8 x 12 = 96
9 x 11 = 99	9 x 12 = 108
10 x 11 = 110	10 x 12 = 120
11 x 11 = 121	11 x 12 = 132
12 x 11 = 132	12 x 12 = 144

Which multiplication and division facts in the 11 and 12 times tables have not appeared before in other times-tables?

Let's look at the 11 X table!

1 x 11 = 11
2 x 11 = 22
3 x 11 = 33
4 x 11 = 44
5 x 11 = 55
6 x 11 = 66
7 x 11 = 77
8 x 11 = 88
9 x 11 = 99
10 x 11 =110
11 x 11 =121
12 x 11 =132

Look at 2 x 11. You should all know your 2X tables.

Which 2X table is commutative to 2 x 11?

11 x 2 = 22

So what does commutative means?

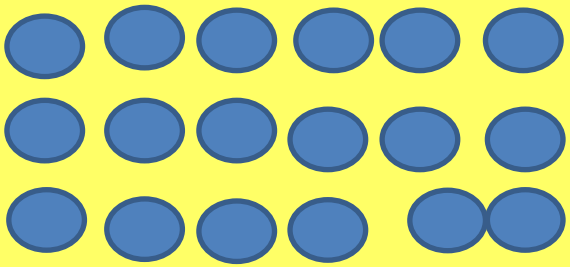
Commutativity is when 2 numbers can be added or multiplied & the same answer will be found no matter what order they are in.

You can use different equipment (base ten, multi-link cubes, place value coins, numicon, cuisinaire) to represent a multiplication calculation.

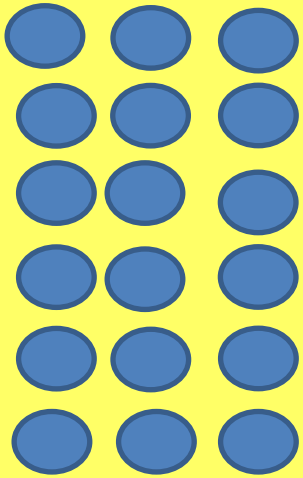
At home, you could use objects or draw counters to show a calculation.

For example

3 x 6



6 x 3



Your turn

In your book, draw the two arrays for 3 x 12 and 12 x 3

So, you can see that numbers which are moved around in different orders, but the result is the same answer. *These are called commutative!*

Using your X Table facts, write the commutative calculations for the following…

1. 3 X 11 = 33
2. 6 X 11 = 66
3. 12 X 11 = 132
4. 2 X 12 = 24
5. 5 X 12 = 60
6. 10 X 12 = 120

When I know 10 × 11 and 11 x 10 is equal to 110, I can use this to number fact to calculate 11 × 11.

I add another 11. 11 x 11 = 121

What number does this represent?

1 X 10 = 10

What number does this represent?

Write it in a number sentence…

1 X 1 = 1

So,

1 X 10 = 10

1 x 1 = 1 

Therefore,

1 X 10 + 1 X 1 = 1 X 11

There are 11 people in the queue for the cinema. If each person bought 5 tickets each, how many tickets have been sold.

How do we approach this problem?

Find the key information… 11 people, 5 tickets

So we need to multiply 11 x 5

What is my answer?

Fluency

Fill in the blanks.

$2 \times 10 =$ ___ $2 \times 1 =$ ___

2 lots of 10 doughnuts = ___ 2 lots of 1 doughnut = ___

2 lots of 11 doughnuts = ___

$2 \times 10 + 2 \times 1 = 2 \times 11 =$ ___

Use objects around the house, or draw circles/squares to show

$3 \times 12 =$ ☐

Complete the calculations.

$12 \times 5 =$ ☐ $5 \times 12 =$ ☐ $48 \div 12 =$ ☐ $84 \div 12 =$ ☐

$12 \times$ ☐ $= 120$ $12 \times$ ☐ $= 132$ ☐ $\div 12 = 8$ ☐ $= 9 \times 12$

There are 11 players on a football team.
7 teams take part in a tournament.
How many players are there altogether in the tournament?

Fluency answers

Fill in the blanks.

$2 \times 10 =$ ___ $2 \times 1 =$ ___

2 lots of 10 doughnuts = ___ 2 lots of 1 doughnut = ___

2 lots of 11 doughnuts = ___

$2 \times 10 + 2 \times 1 = 2 \times 11 =$ ___

Use objects around the house, or draw circles/squares to show

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Complete the calculations.

$12 \times 5 =$ ☐ $5 \times 12 =$ ☐ $48 \div 12 =$ ☐ $84 \div 12 =$ ☐

$12 \times$ ☐ $=120$ $12 \times$ ☐ $=132$ ☐ $\div 12 = 8$ ☐ $= 9 \times 12$

There are 11 players on a football team.
7 teams take part in a tournament.
How many players are there altogether in the tournament?

Reasoning

Here is one batch of muffins.

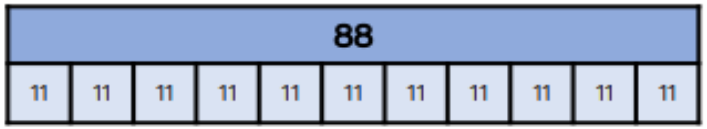
Teddy bakes 11 batches of muffins.
How many muffins does he have altogether?

In each batch there are 3 strawberry, 3 vanilla, 4 chocolate and 2 toffee muffins.
How many of each type of muffin does Teddy have in 11 batches?

Teddy sells 5 batches of muffins.
How many muffins does he have left?

Problem Solving

Rosie uses a bar model to represent 88 divided by 11



Explain Rosie's mistake.

Can you draw a bar model to represent 88 divided by 11 correctly?

Answers - Reasoning Problem Solving

Teddy has 132 muffins altogether.

Strawberry: 33
Vanilla: 33
Chocolate: 44
Toffee: 22

$132 - 55 = 77$

Teddy has 77 muffins left.

Rosie has divided by grouping in 11s but has found 11 groups of 11 which is equal to 121

To divide 88 by sharing into 11 equal groups, there would be 8 in each group.

To divide 88 by grouping in 11s, there would be 8 groups of 11