

Key vocabulary

Times tables, multiplication, multiple, times, grouping, groups of, lots of, sharing, division, divide, equal groups, array, remainder, regroup, regrouping, exchange, exchanging, correspondence, commutativity, place value

3, 4 and 8 times tables

| x 3 | x 4 | x 8 |
|-------------|-------------|-------------|
| 1 x 3 = 3 | 1 x 4 = 4 | 1 x 8 = 8 |
| 2 x 3 = 6 | 2 x 4 = 8 | 2 x 8 = 16 |
| 3 x 3 = 9 | 3 x 4 = 12 | 3 x 8 = 24 |
| 4 x 3 = 12 | 4 x 4 = 16 | 4 x 8 = 32 |
| 5 x 3 = 15 | 5 x 4 = 20 | 5 x 8 = 40 |
| 6 x 3 = 18 | 6 x 4 = 24 | 6 x 8 = 48 |
| 7 x 3 = 21 | 7 x 4 = 28 | 7 x 8 = 56 |
| 8 x 3 = 24 | 8 x 4 = 32 | 8 x 8 = 64 |
| 9 x 3 = 27 | 9 x 4 = 36 | 9 x 8 = 72 |
| 10 x 3 = 30 | 10 x 4 = 40 | 10 x 8 = 80 |
| 11 x 3 = 33 | 11 x 4 = 44 | 11 x 8 = 88 |
| 12 x 3 = 36 | 12 x 4 = 48 | 12 x 8 = 96 |

Don't forget that (for example)
 $1 \times 3 = 3 \times 1$

Remainders

A remainder is the amount left over after a division calculation. We write remainders using an r.

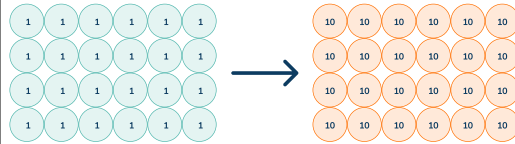
e.g. $27 \div 4 = 6 \text{ r}3$

Mental multiplication and division

We can use known facts to help us multiply and divide by numbers.

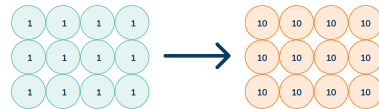
e.g. 40×6 , we know $4 \times 6 = 24$

40 is 10 times the size of 40, so the answer will be 10 times the size: $40 \times 6 = 240$



$120 \div 30 =$

We know that $12 \div 3 = 4$ so $120 \div 30 = 4$



We can also use partitioning to divide.

$639 \div 3 = 213$

| H | T | O |
|-----|----|-----|
| 100 | 10 | 1 1 |
| 100 | 10 | 1 |
| 100 | 10 | 1 1 |
| 100 | 10 | 1 |
| 100 | 10 | 1 1 |
| 100 | 10 | 1 |

This includes when we need to exchange and / or the calculation has remainders.

$640 \div 3 = 213 \text{ r}1$

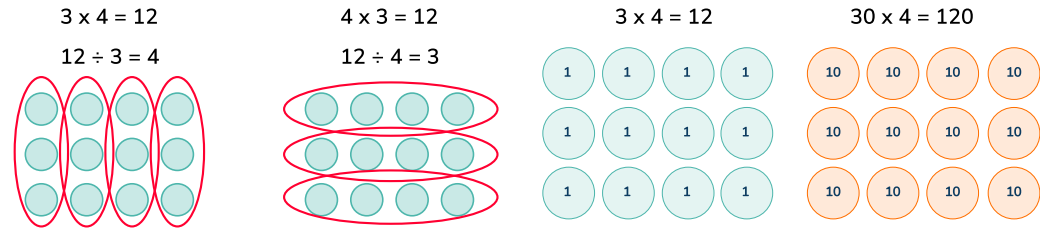
| H | T | O |
|-----|----|-----|
| 100 | 10 | 1 1 |
| 100 | 10 | 1 |
| 100 | 10 | 1 1 |
| 100 | 10 | 1 |
| 100 | 10 | 1 1 |
| 100 | 10 | 1 |



Related Multiplication and Division Facts (Fact Families)

Inverse means the opposite effect. Multiplication is the inverse of division and division is the inverse of multiplication.

We can use this to find fact families for multiplication and division.



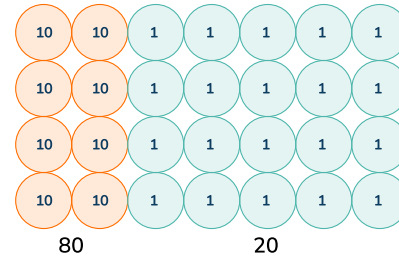
Informal Multiplication of 2-digit x 1-digit

We can use partitioning to help make calculations easier.

e.g. 25×4

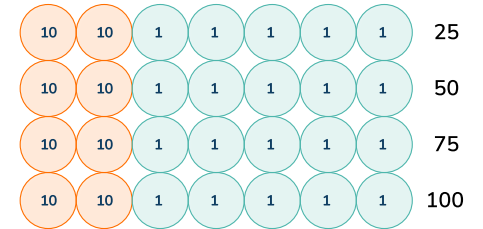
$20 \times 4 = 80, 5 \times 4 = 20$

so $25 \times 4 = 80 + 20 = 100$



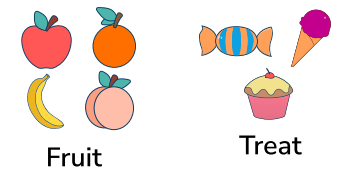
Or we can use repeated addition

$25 \times 4 = 25 + 25 + 25 + 25 = 100$



Correspondence Problems (How many ways)

We sometimes need to find how many different combinations of items we can have. We can solve these problems by finding all possible combinations, it's easiest to do this logically. To find how many combinations there will be, multiply the total number of items in each group.



Here, there will be 12 combinations of fruit and treat.

- (1) apple and sweet, (2) apple and ice cream, (3) apple and cupcake, (4) orange and sweet, (5) orange and ice cream, (6) orange and cupcake, (7) banana and sweet, (8) banana and ice cream, (9) banana and cupcake, (10) peach and sweet, (11) peach and ice cream, (12) peach and cupcake.