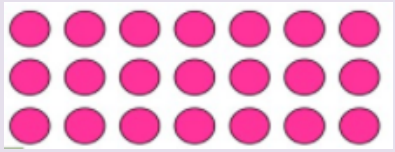
## Multiplication and Division Facts

| x | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 2 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 |
| 3 | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 | 33 | 36 |
| 4 | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 | 44 | 48 |
| 5 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 |
| 6 | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 | 54 | 60 | 66 | 72 |
| 7 | 7 | 14 | 21 | 28 | 35 | 42 | 49 | 56 | 63 | 70 | 77 | 84 |
| 8 | 8 | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72 | 80 | 88 | 96 |
| 9 | 9 | 18 | 27 | 36 | 45 | 54 | 63 | 72 | 81 | 90 | 99 | 108 |
| 10 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 120 |
| 11 | 11 | 22 | 33 | 44 | 55 | 66 | 77 | 88 | 99 | 110 | 121 | 132 |
| 12 | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 | 132 | 144 |



$3 \times 7 = 21$ $7 \times 3 = 21$

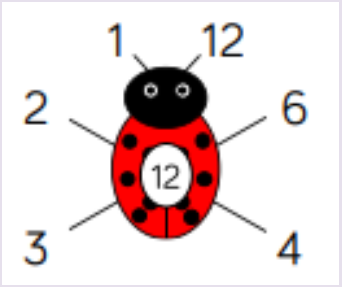
Multiplication is **commutative**

$21 \div 7 = 3$ $21 \div 3 = 7$

Division is not commutative

Multiplication and division are **inverse** operations

## Factor Pairs




1 x 12 and 12 x 1
2 x 6 and 6 x 2
3 x 4 and 4 x 3

Factors are 1 and 12
2 and 6
3 and 4

## Place Value with X and ÷

$5 \times 1 = 5$ $5 \div 1 = 5$

$5 \times 10 = 50$ $50 \div 10 = 5$

$5 \times 100 = 500$ $500 \div 100 = 5$

## Vocabulary

| | |
|---|---|
| **array** | A set of objects arranged in order. Arrays make counting easier. |
| **multiply times** | Repeatedly adding the same amount - the amount increases |
| **multiple** | The result of multiplying a number by a whole number |
| **factors** | Numbers that we multiply together to get a product |
| **product** | The answer when two or more factors are multiplied together |
| **divide** | Split into equal parts or groups |
| **remainder** | An amount left over after division |
| **commutative** | Changing the order of the calculation gives the same result |
| **inverse** | The reverse of - *multiplication is the inverse of division* |

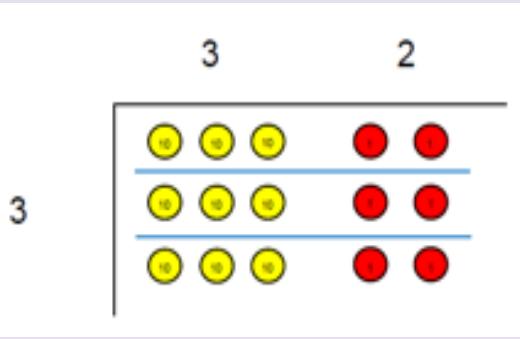
## Formal methods

### 124 x 3

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

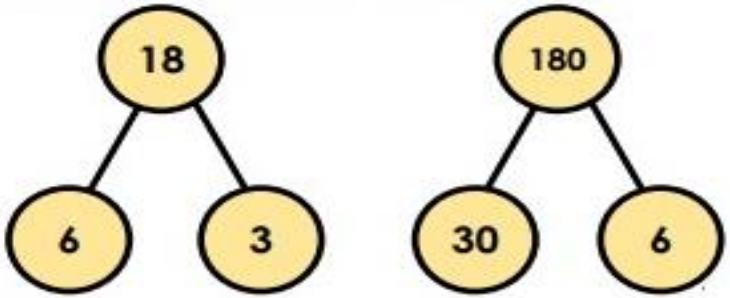
| | 1 | 2 | 4 |
|---|---|---|---|
| x | | | 3 |
| | 3 | 7 | 2 |
| | | 1 | |

### 96 ÷ 3



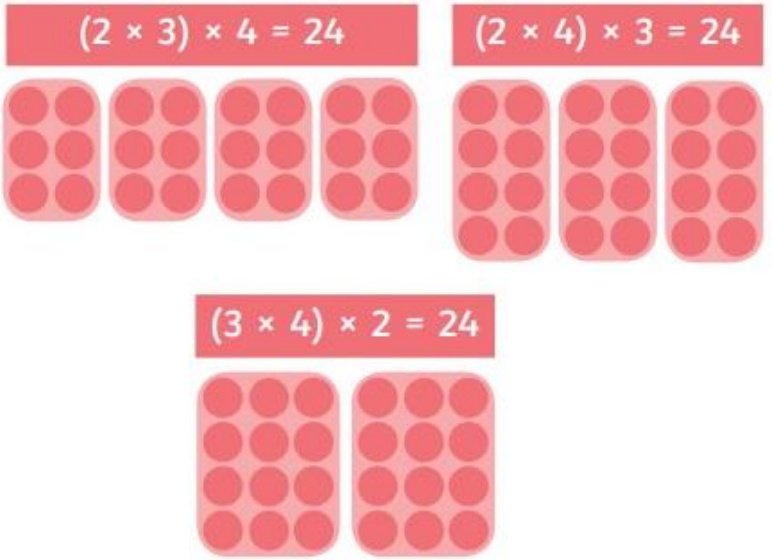

96 ÷ 3 = 32

## Related facts from Times Tables




| | |
|---|---|
| 3 x 6 = 18 | 6 x 3 = 18 |
| 18 ÷ 3 = 6 | 18 ÷ 6 = 3 |
| 30 x 6 = 180 | 60 x 3 = 180 |
| 180 ÷ 30 = 6 | 180 ÷ 60 = 3 |

## Using factors to multiply




## Multiply three numbers

4 x 3 x 6 = 72

| |
|---|
| 4 x 3 x 6 = 72 |
| 4 x 6 x 3 = 72 |
| 3 x 4 x 6 = 72 |

| |
|---|
| 3 x 6 x 4 = 72 |
| 6 x 4 x 3 = 72 |
| 6 x 3 x 4 = 72 |