NUMBER FACTS

By using knowledge of addition and subtraction facts, it is possible to work out and group together related **Number Facts**. 9 + 1 = 10 is a **Number Fact.**

When using 9, 1 and 10 it is possible to create a fact family or group of four **Number Facts** that are related - two **Addition** and two **Subtraction Number Facts**.

Addition Number Facts:

9 + 1 = 10

1 + 9 = 10 (the order of the two numbers being added is switched)

The related **Subtraction Number Facts** are the opposite of the two **Addition Number Facts** since Subtraction (–) is the inverse (opposite) of Addition (+) meaning that a subtraction will undo the addition.

Example: 9 + 1 = 10 is an **Addition Number Fact** made up of three numbers.

10 – 1 = 9 will undo the addition to end up with 9.

Subtraction Number Facts:

10 – 1 = 9

10 – 9 = 1

The fact family or group of four related **Number Facts**			
9 + 1 = 10	1 + 9 = 10	10 – 1 = 9	10 – 9 = 1

The table below shows all the combinations of numbers pairs ADDING to 10 and the corresponding SUBTRACTING from 10 facts.

ADDING to a GROUP to make 10		SUBTRACTING from 10	
9 + 1 = 10	1 + 9 = 10	10 – 1 = 9	10 – 9 = 1
8 + 2 = 10	2 + 8 = 10	10 – 2 = 8	10 – 8 = 2
7 + 3 = 10	3 + 7 = 10	10 – 3 = 7	10 – 7 = 3
6 + 4 = 10	4 + 6 = 10	10 – 4 = 6	10 – 6 = 4
5 + 5 = 10		10 – 5 = 5	

NUMBER FACTS

Combinations of **Number Facts** ADDING to 100 and the corresponding SUBTRACTING from 100 facts can be used to create fact families or groups.

NUMBERS ADDING to 100	SUBTRACTING FROM 100
90 + 10 = 100 10 + 90 = 100	100 – 10 = 90 100 – 90 = 10
80 + 20 = 100 20 + 80 = 100	100 – 20 = 80 100 – 80 = 20
70 + 30 = 100 30 + 70 = 100	100 – 30 = 70 100 – 70 = 30
60 + 40 = 100 40 + 60 = 100	100 – 40 = 60 100 – 60 = 40
50 + 50 = 100	10 – 5 = 5

Combinations of **Number Facts** ADDING to 20 and the corresponding SUBTRACTING from 20 facts can also be used to create fact families or groups.

NUMBERS ADDING to 20	SUBTRACTING FROM 20
10 + 10 = 20	20 – 10 = 10
11 + 9 = 20 9 + 11 = 20	20 – 9 = 11 20 – 11 = 9
12 + 8 = 20 8 + 12 = 20	20 – 8 = 12 20 – 12 = 8
13 + 7 = 20 7 + 13 = 20	20 – 7 = 13 20 – 13 = 7
14 + 6 = 20 6 + 14 = 20	20 – 6 = 14 20 – 14 = 6
15 + 5 = 20 5 + 15 = 20	20 – 5 = 15 20 – 15 = 5
16 + 4 = 20 4 + 16 = 20	20 – 4 = 16 20 – 16 = 4
17 + 3 = 20 3 + 17 = 20	20 – 3 = 17 20 – 17 = 3
18 + 2 = 20 2 + 18 = 20	20 – 2 = 18 20 – 18 = 2
19 + 1 = 20 1 + 19 = 20	20 – 1 = 19 20 – 19 = 1
20 + 0 = 20 0 + 20 = 20	20 – 0 = 20 20 – 20 = 0

Number Facts and groups of related facts shown in the tables above are very useful for answering questions such as 14 + __ = 20

6 is the missing number since 20 – 14 = 6

Similarly: 37 + __ = 50

13 is the missing number since 50 – 37 = 13

NUMBER FACTS

Two decimal numbers can be used to create two addition and two subtraction **Number Facts** that are related. The table below shows all the combinations of numbers pairs ADDING to 1.

NUMBERS ADDING TO 1	DERIVED FACTS SUBTRACTING FROM 1
0.9 + 0.1 = 1 0.1 + 0.9 = 1	1 – 0.1 = 0.9 1 – 0.9 = 0.1
0.8 + 0.2 = 1 0.2 + 0.8 = 1	1 – 0.2 = 0.8 1 – 0.8 = 0.2
0.7 + 0.3 = 1 0.3 + 0.7 = 1	1 – 0.3 = 0.7 1 – 0.7 = 0.3
0.6 + 0.4 = 1 0.4 + 0.6 = 1	1 – 0.4 = 0.6 1 – 0.6 = 0.4
0.5 + 0.5 = 10	10 – 5 = 5

Related **Number Facts** can be once again used to solve problems with missing numbers, such as $0.7 + \_\_ = 1$

0.3 is the missing number since $1 - 0.7 = 0.3$

Similarly: Example a) $6.5 + \_\_ = 9.2$

2.7 is the missing number since $9.2 - 6.5 = 2.7$

	T	U
	8	*10*
	~~9~~	. 2
–	6	. 5
	2	. 7

Example b) $8.85 - \_\_\_\_ = 2.66$

6.19 is the missing number since $8.85 - 2.66 = 6.19$

	H	T	U
		7	*10*
	8	. ~~8~~	5
–	2	. 6	6
	6	. 1	9

$8.85 - 6.19 = 2.66$

and

$8.85 - 2.66 = 6.19$

are related **Number Facts**

Proprties of numbers

Even and Odd Numbers

Even numbers can be divided into equal groups of two.
For example the number eight can be divided into four groups of two.
$8 \div 2 = 4$
All even numbers end in **0**, **2**, **4**, **6** or **8**

Odd numbers cannot be divided into equal groups of two.
The number five can be divided into two groups of two and *one extra group of one*.
$5 \div 2 = 2$ *remainder 1*
All odd numbers end in **1**, **3**, **5**, **7** or **9**

The number 0 is neither even nor odd.

Multiples

A **Multiple** is the result of multiplying a number by any other whole number.

Example 1:
5 X 1 = 5
5 X 2 = 10
5 X 3 = 15
5 X 4 = 20

5, 10, 15 and 25 are called **multiples** of 5 because they can be divided by 5 without leaving any remainder.

Example 2:
3 X 1 = 3
3 X 2 = 6
3 X 3 = 9
3 X 4 = 12

3, 6, 9 and 12 are all **multiples** of 3.

Factors

When a number is exactly divisible (without any remainder) by another number that number is called a **Factor**.

Example:
$12 \div 1 = 12$
$12 \div 2 = 6$
$12 \div 3 = 4$
$12 \div 4 = 3$
$12 \div 6 = 2$
$12 \div 12 = 1$

12, 6, 4, 3, 2 and 1 are all **factors** of 12

Proprties of numbers

Prime numbers

Numbers that are only divisible by 1 and the number itself are called **Prime numbers**.
7 is a prime number since it is only divisible by 1 and 7.
7 is only a multiple of 1 and 7.
1 X 7 = 7

2, **3**, **5**, **7**, **11**, **13**, **17**, **19**, **23**, **29**, **31**, **37**, **41**, **43**, **47**, **53**, **59**, **61**, **67**, **71**, **73**, **79**, **83**, **89** and **97** are all the prime numbers up to 100.

Square numbers

When two identical numbers are multiplied together, the resulting answer is a Square number.
For example, 4 is a square number because 2 X 2 = 4
2 X 2 = 4 can also be written as 2^2 or 2 squared.
9 is also a square number because 3 X 3 = 9 or $3^2 = 9$

1^2 or 1 X 1 = **1**
2^2 or 2 X 2 = **4**
3^2 or 3 X 3 = **9**
4^2 or 4 X 4 = **16**
5^2 or 5 X 5 = **25**
6^2 or 6 X 6 = **36**
7^2 or 7 X 7 = **49**
8^2 or 8 X 8 = **64**
9^2 or 9 X 9 = **81**
10^2 or 10 X 10 = **100**
11^2 or 11 X 11 = **121**
12^2 or 12 X 12 = **144**

1, **4**, **9**, **16**, **25**, **36**, **49**, **64**, **81**, **100**, **121** and **144** are the first 12 square numbers.

Properties of Numbers and Number Facts Worksheet

Fill in:

a) 27 – ___ = 13 b) 13 + 14 = ___ c) 27 – ___ = 14

d) 0.7 + ___ = 1 e) ___ + 0.8 = 1 f) 1.2 + ___ = 10

g) 2.8 + 3.2 = ___ h) 6 – ___ = 2.8 i) 6 – ___ = 3.2

How much more needs to be added to make €10:

a) €5.50 + _____ = €10 b) €1.30 + _____ = €10

c) €9.20 + _____ = €10 d) €1.11 + _____ = €10

Use these numbers to write two **addition facts** and two **subtraction facts**:

40		**60**	**100**
addition facts		**subtraction facts**	
40 + 60 = 100	60 + 40 = 100	100 – 40 = 60	100 – 60 = 40

33		**67**	**100**
addition facts		**subtraction facts**	

4.5		**5.5**	**10**
addition facts		**subtraction facts**	

Fill in with two identical EVEN numbers.

Example:

6 X 6 = 36 (The product of these two identidal even numbers is a square number)

a) ___ X ___ = 16 b) ___ X ___ = 64 c) ___ X ___ = 100

Fill in with two identical ODD numbers.

Example:

3 X 3 = 9 (The product of these two identical odd numbers is a square number)

a) ___ X ___ = 49 b) ___ X ___ = 81 c) ___ X ___ = 25

Properties of Numbers and Number Facts Answer Sheet

Fill in:

a) 27 – 14 = 13 b) 13 + 14 = 27 c) 27 – 13 = 14

d) 0.7 + 0.3 = 1 e) 0.2 + 0.8 = 1 f) 1.2 + 8.8 = 10

g) 2.8 + 3.2 = 6 h) 6 – 3.2 = 2.8 i) 6 – 2.8 = 3.2

How much more needs to be added to make €10:

a) €5.50 + €4.50 = €10 b) €1.30 + €8.70 = €10

c) €9.20 + €0.80 = €10 d) €1.11 + €8.89 = €10

Use these numbers to write two **addition facts** and two **subtraction facts**:

40		**60**	**100**
addition facts		**subtraction facts**	
40 + 60 = 100	60 + 40 = 100	100 – 40 = 60	100 – 60 = 40

33		**67**	**100**
addition facts		**subtraction facts**	
33 + 67 = 100	67 + 33 = 100	100 – 33 = 67	100 – 67 = 33

4.5		**5.5**	**10**
addition facts		**subtraction facts**	
4.5 + 5.5 = 10	5.5 + 4.5 = 10	10 – 4.5 = 5.5	10 – 5.5 = 4.5

Fill in with two identical EVEN numbers.

Example:

6 X 6 = 36 (The product of these two identidal numbers is a square number)

a) 4 X 4 = 16 b) 8 X 8 = 64 c) 10 X 10 = 100

Fill in with two identical ODD numbers.

Example:

3 X 3 = 9 (The product of these two identical numbers is a square number)

a) 7 X 7 = 49 b) 9 X 9 = 81 c) 5 X 5 = 25