NCFE Functional Skills Qualification in Mathematics (603/5060/X)

Getting ready to take Level 2

Learner workbook

Name	
Tutor	

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Contents

L2.N1 Positive and negative numbers

Learning Objective

- Read, write, order and compare positive and negative numbers of any size.

Key words for this element:

- Positive
- Negative
- Opposite

Let's have a quick refresh.
What do we know about comparing numbers?

When comparing numbers, we often use the symbols '<' and '>' to show which number is greater or less than another.

'>' means greater than

'<' means less than

Remember, the largest part of the arrow faces the largest number.

We can say 25 is greater than 17 and write it as 25 > 17

We can also say that 17 is less than 25 and write is as 17 < 25

Whole numbers are arranged in groups of three. As the numbers get larger the value of each group changes.

We start with units, followed by thousands, millions, and so on. Look at the following number:

542 167 518

The value of the group of numbers **518 is units.**
The value of the group of numbers **167 is thousands.**
The value of the group of numbers **542 is millions**

Quick check

The value of a digit is shown by its position in a number:

3 435 742 is written:

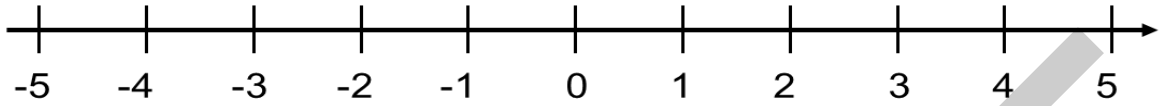
Three million, four hundred and thirty-five thousand, seven hundred and forty-two.

Millions	Hundreds of thousands	Tens of thousands	Thousands	Hundreds	Tens	Units
3	4	3	5	7	4	2

What we already know about positive and negative numbers?

- Positive numbers are always greater than zero
- Negative numbers are less than zero
- Zero is neither negative nor positive
- Positive numbers can be thought of as opposites of each other – when you add them together you get zero.

Look at the following number line.



All numbers less than zero are negative

All numbers greater than zero are positive

Zero is neither negative nor positive

Adding and subtracting negative numbers

When we start with a negative number and add to it, we move along the number line to the right

Quick check

What is -3 + 6?

On the number line find -3 and the move six spaces to the right. Where are you?

On the number 3

So, -3 + 6 = 3

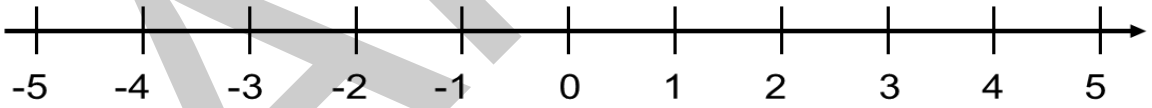
Useful tip:

If we are adding a minus number to a positive number, it turns into a subtraction sum.

Two mixed signs next to each other in a sum always turn into a subtraction.

Quick check

8 + -3	-15 + -9
Is the same as	Is the same as
8 - 3	-15 - 9
Answer 8 - 3 = 5	Answer -15 - 9 = -24



When we subtract from a negative number, we move along the number line to the left

Quick check

What is 4 - 6?

On the number line find 4 and the move four spaces to the left. Where are you?

On the number -2

So, 4 - 6 = -2

Useful tip:

Subtracting a negative number turns the sum into an addition sum.

Two negative signs next to each other in a sum always turn into an addition symbol.

Quick check

9 - -5

Is the same as

9 + 5

Answer 9 + 5 = 14

-10 - -6

Is the same as

-10 + 6

Answer -10 + 6 = -4

Negative numbers in context

Where do we see negative numbers in use around us?

Altitude

Used in places that are above and below sea level.

Thermometers

Measure temperature

Weather
Fridges/Freezers

Money

An overdrawn balance will show as a negative value.

Practice skills

Answer the following questions

1. Write the following numbers in words.

   48 749 93 010 6 333 782

2. Look at the number £78 291 485 360. Identify the place value of the following digits and the amount they represent by completing the table.

Digits	Place value	Amount
3	Hundreds	£300
4		
6		
5		
7		
1		

3. In the height of the last British heatwave, the thermometer was reading 30°C but by 11pm the temperature had dropped by 12°C

a) What was the thermometer reading at 11pm?

On the other hand, British winters are bitterly cold and the average temperature last November in the morning was -2°C but by the afternoon it had reached 9°C.

b) By how many degrees had the temperature risen?

Sometimes, we use Fahrenheit instead of Celsius when reading temperatures.

c) How many degrees Fahrenheit are there between -20°F and 85°F?