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Numeracy Entry Level 3 – Subtraction

1 of 23 – Welcome

Welcome to this session on subtraction.

By the end of the session you will be able to:

- Subtract three-digit numbers
- Subtract using a range of methods

2 of 23 –Subtraction

When you subtract numbers you use the subtraction sign. It is a small horizontal line.

We use different words to describe subtraction.

For example, $25 - 6 = 19$can be described as:

- 25 subtract 6 equals 19
- The difference between 25 and 6 is 19
- 25 take away 6 is 19
- 25 minus 6 is 19
- 19 is 6 less than 25
- If you decrease 25 by 6 you get 19

3 of 23 –Question 1

Which of the following words or phrases can be used for subtraction?

Choose all that apply:

A. Minus
B. Less than
C. Divide by
D. Decrease by
E. Sum of

The correct answers are A, B and D, minus, less than and decrease by.

4 of 23 –Number order for subtraction

With addition, it doesn't matter which order the numbers are in.

For example:2 + 4 = 6is the same as4 + 2 = 6.

However, it DOES matter which order the numbers are in for subtraction.

For example:$8 - 6 = 2$is not the same as$6 - 8 = -2$.

5 of 23 –Question 2

Suzy has bought a pack of 12 cupcakes to share with her friends. They have eaten 5 cupcakes.

Which of the following sums should Suzy use to help her work out how many cupcakes are left?

A. $12 - 5 = 7$
B. $12 - 7 = 5$
C. $5 - 12 = -7$
D. $7 - 12 = -5$

The correct answer is A, $12 - 5 = 7$.

6 of 23 –Subtraction methods

There are a number of different subtraction methods that you can use. There is no method that is 'right' or 'better' – you must use the method that works best for you.

In this session we will be learning about:

- Number line method
- Formal written method
- Splitting method

Have a go at all three methods and then decide which one is best for you.

7 of 23 –Number line method

You can use a number line to help you subtract.

For example,consider a line marked with numbers from -5 to 5. To work out $1 - 3$, you would find the number 1 on the number line and subtract the 3 by moving left along the number line 3 places.

The answer is where you end up on the number line: $1 - 3 = -2$.

8 of 23 –Number line method – continued

You can also count by 10s (or make any "jumps" you want) to help solve a calculation.

For example, consider a line marked with numbers from 0 to 20.To work out the answer to $16 - 13$, you would find number 16 on the number line, and then "jump" left by 10 to the number 6.Then move left along the number line by another 3.

The answer is where you end up on the number line: $16 - 13 = 3$.

9 of 23 –Question 3

Which sum is being described below:

There is a number line marked with numbers from 0 to 20. The starting point is marked at number 18 and then "jumps" by 10 to the number 8. The point then moves along the number line by another 4, which ends at the number 4.

A. $10 - 4 = 6$
B. $18 - 14 = 4$
C. $18 - 10 = 8$
D. $9 - 5 = 4$

The correct answer is B, $18 - 14 = 4$.

10 of 23 –Question 4

Molly decides to change the lightbulbs she uses in her house. She buys a box of 20 bulbs and replaces 5 bulbs in her lounge, 4 bulbs in her kitchen and 1 bulb in her bathroom. How many new lightbulbs does Molly have left?

Use the number line concept to help you work out the answer and then check it against the correct answer below.

The correct answer is: **10**.

11 of 23 –Formal written method

The formal written method of subtraction is useful for subtracting bigger numbers, and for subtracting more than two numbers.

When using the formal written method, it is **important to line up the place values**. Always start subtracting from the column on the right, and work towards the left.

Let's use the example of $26 - 12 = 14$. The steps below will walk you through working out the sum using the formal written method.

Step 1
Write the sum out so the units and tens are lined up, like the example in the table below:

Tens	Units
2	6
1	2

The above table shows that the units 6 and 2 are lined up in the same column and the tens 2 and 1 are lined up in the same column.

Step 2
Subtract the lower unit from the upper unit.e.g. $6 - 2 = 4$. Put the answer in the units column, like the example in the table below:

Tens	Units
2	6
1	2
0	4

The above table shows that the number 4 has been added below the 6 and 2 in the units column.

Step 3
Subtract the lower tens digit from the upper tens digite.g. $2 - 1 = 1$. Put the answer in the tens column, like the example in the table below:

Tens	Units
2	6
1	2
1	4

The above table shows that the number 1 has been added below the 2 and 1 in the tens column.

Step 4
We have 1 ten and 4 units, so the answer is **14**.

12 of 23 – Borrowing

When using this method, you will sometimes need to subtract a larger number from a smaller number. In this case you will need to borrow (also called regrouping).

Let's take the example of $32 - 17 = 15$.

Step 1
Write the sum out so the units and tens are lined up, like the example in the table below:

Tens	Units
3	2
1	7

The above table shows that the units 2 and 7 are lined up in the same column and the tens 3 and 1 are lined up in the same column.

Step 2
You cannot subtract 7 from 2, so you need to 'borrow' ten from the tens column. To do this, reduce the tens figure by 1,e.g. 3 take away 1 is 2, so that the number 2 replaces the number 3. You then need to increase the units figure by 10, e.g. 2 + 10 = 12,so that the number 12 replaces the number 2, like the example in the table below:

Tens	Units
2 (replaces 3)	12 (replaces2)
1	7

The above table shows that the number 12 has replaced the number 2 in the units column and the number 2 has replaced the number 3 in the tens column.

Step 3
Now you can subtract the lower unit from the upper unit, e.g. $12 - 7 = 5$. Put the answer in the units column, like the example in the table below:

Tens	Units
2 (replaces 3)	12 (replaces 2)
1	7
0	5

The above table shows that the number 5 has been added below the 12 and 7 in the units column.

Step 4
Subtract the lower tens digit from the upper tens digit e.g. $2 - 1 = 1$. Put the answer in the tens column, like the example in the table below:

Tens	Units
2 (replaces 3)	12 (replaces 2)
1	7
1	5

The above table shows that the number 1 has been added below the 2 and 1 in the tens column.

Step 5
We have 1 ten and 5 units, so the answer is **15**.

13 of 23 –Video

Watch the following video to see examples of subtraction using the formal written method:

Math Antics – Multi-Digit Subtraction

14 of 23 –Question 5

Complete this subtraction sum using the formal written method: $879 - 546 - 102$.

Hundreds	Tens	Units
8	7	9
5	4	6
1	0	2

Work out the answer and then compare it with the correct answer below.

The correct answer is: **231**.

15 of 23 –Question 6

Using the following numbers;**1**, **6**, **5**, **2** and **3**, fill in the blanks for the formal written method calculation below (you do not need to use all of the words):

Hundreds	Tens	Units
1 (replaces 2)	10 (replaces 0)	**Blank**
0	8	4
Blank	**Blank**	1

The correct calculation should be:

Hundreds	Tens	Units
1 (replaces 2)	10 (replaces 0)	**5**
0	8	4
1	**2**	1

16 of 23 –Splitting method

The splitting method, sometimes called partitioning, splits large numbers into easier-to-use small parts. Let's use the splitting method to work out the calculation $160 - 34$.

Step 1
Split the 34 into 30 and 4.This makes the calculation:$160 - 30 - 4$.

Step 2
First, subtract the 30 from 160: $160 - 30 = 130$.

Step 3
Then, subtract the 4 from the 130 to get the answer: $130 - 4 = 126$.

17 of 23 –Question 7

Match these original sums; $23 - 12$, $150 - 26$, $130 - 39$ and $279 - 126$, to their split sums below:

1. $23 - 10 - 2$
2. $279 - 100 - 20 - 6$
3. $130 - 30 - 9$
4. $150 - 20 - 6$

The correct answers are:
$23 - 12$is the same as the split sum $23 - 10 - 2$.
$150 - 26$is the same as the split sum $150 - 20 - 6$.
$130 - 39$is the same as the split sum $130 - 30 - 9$.
$279 - 126$ is the same as$279 - 100 - 20 - 6$.

18 of 23 –Question 8

Karl is organising a large party. 200 people have been invited, but only 146 have replied to confirm whether or not they are coming. How many people have not replied yet?

Let's use the splitting method to work this out. We can split the calculation, so it looks like this: $200 - 100 - 40 - 6$.

Here are the stages you can perform to work out this calculation:

- Start with 200 and subtract 100
- Then subtract 40
- Then subtract 6

Work out each stage of the calculation above and make a note of your answers so you can compare them with the correct answers below.

The correct answers are:
Start with 200 and subtract 100 – the answer is 100.
Then subtract 40 – the answer is 60.
Then subtract 6 – the answer is **54**.

19 of 23 – Checking your answers

Subtraction is the opposite action of addition. Therefore, when you carry out a subtraction you can check your answer using addition.

For example, we know that: $10 - 7 = 3$.

Therefore,3 + 7 = 10 and 7 + 3 = 10.

20 of 23 –Question 9

Wilma bought a packet of 100 envelopes. She has used 77 and does the following calculation to find out how many are left: $100 - 77 = 23$.

Which of the following calculations can she use to check her answer?

A. $77 - 23 = 54$
B. 77 + 23 = 100
C. $23 - 77 = -54$
D. 100 + 77 = 177

The correct answer is B, 77 + 23 = 100.

21 of 23 –Task

Download the accompanying**Subtraction PDF** and answer all of the questions.

Remember to complete and save your work on the PDF document.

22 of 23 – End

Well done. You have completed this session on subtraction.

You should now be able to:

- Subtract three-digit numbers
- Subtract using a range of methods

If you have any questions about any of these topics, make a note and speak to your tutor for more help.