

## Lesson 9 – Subtracting Negative Numbers

### Starter

Work out:

1)  $3 - 7$

2)  $5 + -4$

3)  $-7 + 9$

4)  $-2 + -3$

5)  $11 + -8$

### Starter Answers

1) -4

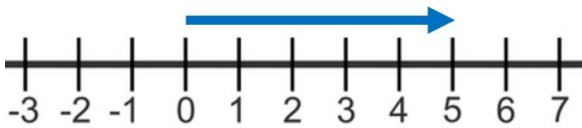
2) 1

3) 2

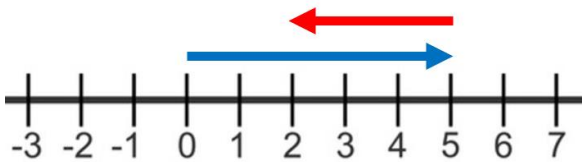
4) -5

5) 3

We can think of the number 5 as a **distance of 5** from zero in the **positive** direction.



If we wanted to subtract 3 from 5, we would count backwards 3 in the negative direction.



$$\boxed{5} - \boxed{3} = 2$$

Distance of 5 in the positive direction

Distance of 3 in the positive direction.

We are subtracting this so the vector changes direction.

So, when we **subtract**, the vector **changes direction**.

The above example showed us what happens when we subtract a positive number.

What happens when we **subtract a negative** number?

Consider the calculation  $5 - -3$



$$\boxed{5} - \boxed{-3} = 8$$

Distance of 5 in the positive direction

Distance of 3 in the negative direction.

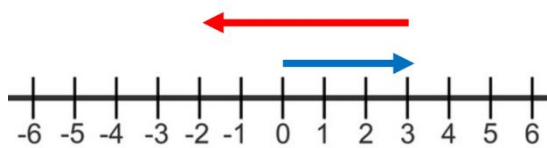
We are subtracting this so the vector changes direction.

We can see that when we **subtract** a **negative** number, we are actually **adding**.

### Example 1

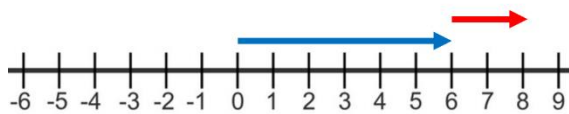
Use vectors to work out the following calculations

1)  $3 - 5$



$$3 - 5 = -2$$

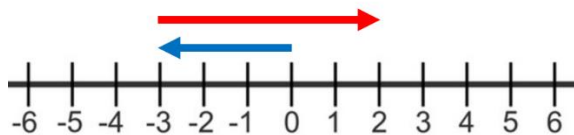
2)  $6 - -2$



When we subtract, the vector changes direction. So, instead of travelling a distance of 2 in the negative direction, we travel a distance of 2 in the positive direction.

$$6 - -2 = 8$$

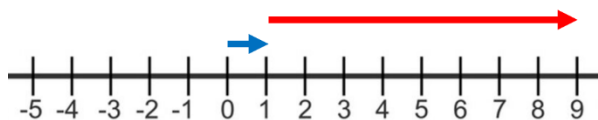
3)  $-3 - -5$



We are subtracting  $-5$  so instead of moving 5 in the negative direction, we move 5 in the positive direction.

$$-3 - -5 = 2$$

4)  $1 - -8$



Instead of moving 8 in the negative direction, we move 8 in the positive direction.

$$1 - -8 = 9$$

### Your go

Work out

1)  $2 - -3$

2)  $5 - 7$

3)  $7 - -5$

4)  $10 - 6$

5)  $-2 - -5$

6)  $-3 - 7$

7)  $4 - -3$

8)  $-8 - -9$

### Answers

1) 5

2) -2

3) 12

4) 4

5) 3

6) -10

7) 7

8) 1