

## Thanks for downloading this resource!

The zip folder that you've just opened contains a PDF file with **interactive features**.

In a move towards offering an even more versatile spread of resources, some of our worksheets feature interactive fields that can be filled in on computers and smart devices, without having to print the page. Follow the guidance in the next column for a smooth, stress-free means of accessing this content using free-to-download PDF reading software.



**Step 1:** Click the following link to download [Adobe Acrobat Reader DC](#) for PC/Mac (or search 'Adobe Acrobat Reader' on Google Play or the App Store). Open the downloaded file and Adobe Acrobat Reader will install automatically. For the best experience we recommend using PC/Mac.

**Step 2:** Open your interactive resource using Adobe Acrobat Reader DC.

If you are a PC/Mac user and your downloaded PDF resource does not open using Acrobat Reader by default, simply right-click your PDF file, go to 'Open with' and select Adobe Acrobat Reader DC from the drop-down list.

**Step 3:** Complete the resource!

**For PC/Mac users:** To fill in the resource, click the text fields and type your answers as needed. Check boxes and radio buttons can simply be clicked on to make the selection of your choice and for anything else you will see the question mark icon which, upon being clicked, will reveal specific instructions for you respond to the corresponding question or activity. When you are finished with the resource, go to File > Save As... and save your file in a memorable location.

**For smart device users:** To fill in the resource, follow the same process as described above. When you are finished, simply press the back button in the top left of the appscreen and your PDF will save automatically.

**Remember:** Saving your PDF will overwrite the original file, so be sure to create a copy before starting if you wish to keep a blank copy of the resource on your device.

We hope you have found this information useful. If you experience any problems in following the instructions above, please contact the Beyond team at [beyond@regentstudies.com](#) and we will do our best to help with your query.

**Your Turn**

1. Calculate the following:

a.  $4 - 5$

**-1**

e.  $-4 + 3$

**-1**

i.  $-2 - -8$

**6**

m.  $11 - 20$

**-9**

b.  $2 + -6$

**-4**

f.  $-7 + 11$

**4**

j.  $10 - -9$

**19**

n.  $43 - 56$

**-13**

c.  $10 - 12$

**-2**

g.  $-4 + -8$

**-12**

k.  $-2 - -16$

**14**

o.  $-21 + -15$

**-36**

d.  $-10 + 2$

**-8**

h.  $-2 + -3$

**-5**

l.  $7 - -4$

**11**

2. Calculate the following:

a.  $4 \times -2$

**-8**

f.  $-64 \div -4$

**16**

k.  $-7 \times -13$

**91**

p.  $(-12)^2$

 **$-12 \times -12 = 144$** 

b.  $-11 \times 12$

**-132**

g.  $-9 \times -12$

**108**

l.  $12 \div -0.5$

**-24**

q.  $(-8)^2$

 **$-8 \times -8 = 64$** 

c.  $10 \times -8$

**-80**

h.  $24 \times -6$

**-144**

m.  $-1 \div -2$

**0.5**

r.  $(-3)^3$

 **$-3 \times -3 \times -3 = -27$** 

d.  $-18 \div -3$

**6**

i.  $-120 \div 4$

**-30**

n.  $-146 \times 6$

**-876**

e.  $-56 \div 7$

**-8**

j.  $685 \div -5$

**-137**

o.  $-254 \times -8$

**2032**

3. Complete the table.

+	-2	-1	2	5	10
-6	<b>-8</b>	<b>-7</b>	<b>-4</b>	$-6 + 5 = -1$	<b>4</b>
-10	$-10 + -2 = -12$	<b>-11</b>	<b>-8</b>	<b>-5</b>	<b>0</b>
2	<b>0</b>	<b>1</b>	<b>4</b>	<b>7</b>	<b>12</b>
3	<b>1</b>	<b>2</b>	$3 + 2 = 5$	<b>8</b>	<b>13</b>
-4	<b>-6</b>	<b>-5</b>	<b>-2</b>	<b>1</b>	<b>6</b>

4. Write down seven multiplications with an answer of -20.

**For example:**

$-1 \times 20$

$1 \times -20$

$-2 \times 10$

$2 \times -10$

$-4 \times 5$

$4 \times -5$

$-40 \times 0.5$

### Challenge

Below are five cards, each with a number written on it.



a. Choose two suitable cards to make the calculation correct.

$$\boxed{2} + \boxed{-3} = -1$$

b. Choose two cards that will give the smallest possible answer.

$$\boxed{-7} + \boxed{-4} = \underline{\quad -11 \quad}$$

c. Choose two cards that will give the greatest possible answer.

$$\boxed{2} - \boxed{-7} = \underline{\quad 9 \quad}$$

# The Four Operations with Negative Numbers

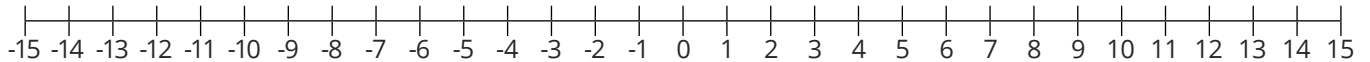
## Prior Knowledge:

Be able to perform the four operations with positive numbers.

A **negative** number is **less than** zero. A negative number is written with a minus sign in front.

The four operations are addition (+), subtraction (-), multiplication (×) and division (÷).

When adding and subtracting negative numbers, it may help to have a number line.



## Addition and Subtraction

### Example 1

Calculate  $-6 + 4$ .

Find the starting number. **-6**

Now, look at the sign immediately to the right of this number. This tells you whether to move right or left from your starting number; + tells you to go right, up the number line, and - tells you to move down, to the left.

In this question, you will move right (up the number line).

The second number tells you how many to move up or down, which, in this case will be 4.

$$-6 + 4 = -2$$

### Example 3

Calculate  $-6 - -9$ .

This question has two signs next to each other; when this happens, you can substitute the pair for a single function to simplify the calculation.

**++ or -- are replaced by +.**

**+ - or - + are replaced by -.**

So,  $-6 - -9$  becomes  $-6 + 9$ .

Following the same steps as before gives you an answer of **3**.

### Example 2

Calculate  $-3 - 5$ .

Find the starting number. **-3**.

Look at the sign immediately to the right of this number: -

This tells you to move down (left) along the number line.

5 tells you that this will be 5 places.

$$-3 - 5 = -8$$

### Example 4

Calculate  $-5 + -2$ .

**+ - or - + are replaced by -.**

$-5 + -2$  becomes  $-5 - 2$ .

$$-5 - 2 = -7$$

### Multiplication and Division

The methods for multiplying and dividing negative numbers are completely different from those for adding and subtracting.

Firstly, ignore any negative signs and complete the multiplication or division with positive numbers.

Once you have calculated the multiplication or division, now take note of the signs in the question.

If they are **both negative** or **both positive**, your answer will be **positive**.

If there is **one of each**, your answer will be **negative**.

#### Example 1

Calculate  $-7 \times 3$ .

Complete the multiplication with positive numbers.  $7 \times 3 = 21$

Now, look at the signs. There is a **negative** sign with 7 and there doesn't appear to be anything with 3. (If there doesn't appear to be a sign with a number, the number is positive.)

We have one of each so the answer will be negative.

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

#### Example 2

Calculate  $-45 \div -9$ .

Complete the division with positive numbers.  $45 \div 9 = 5$ .

Now, look at the signs. Both signs are **negative**, so the answer will be **positive**.

$$-45 \div -9 = 5$$

**Your Turn**

1. Calculate the following:

a.  $4 - 5$

e.  $-4 + 3$

i.  $-2 - -8$

m.  $11 - 20$

b.  $2 + -6$

f.  $-7 + 11$

j.  $10 - -9$

n.  $43 - 56$

c.  $10 - 12$

g.  $-4 + -8$

k.  $-2 - -16$

o.  $-21 + -15$

d.  $-10 + 2$

h.  $-2 + -3$

l.  $7 - -4$



2. Calculate the following:

a.  $4 \times -2$

f.  $-64 \div -4$

k.  $-7 \times -13$

p.  $(-12)^2$

b.  $-11 \times 12$

g.  $-9 \times -12$

l.  $12 \div -0.5$

q.  $(-8)^2$

c.  $10 \times -8$

h.  $24 \times -6$

m.  $-1 \div -2$

r.  $(-3)^3$

d.  $-18 \div -3$

i.  $-120 \div 4$

n.  $-146 \times 6$

e.  $-56 \div 7$

j.  $685 \div -5$

o.  $-254 \times -8$

3. Complete the table.

+	-2	-1	2	5	10
-6				$-6 + 5 = -1$	
-10	$-10 + -2 = -12$				
2					
3			$3 + 2 = 5$		
-4					

4. Write down seven multiplications with an answer of -20.

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	

### Challenge

Below are five cards, each with a number written on it.



a. Choose two suitable cards to make the calculation correct.

$$\boxed{\phantom{0}} + \boxed{\phantom{0}} = -1$$

b. Choose two cards that will give the smallest possible answer.

$$\boxed{\phantom{0}} + \boxed{\phantom{0}} = \underline{\phantom{0}}$$

c. Choose two cards that will give the greatest possible answer.

$$\boxed{\phantom{0}} - \boxed{\phantom{0}} = \underline{\phantom{0}}$$

# The Four Operations with Negative Numbers

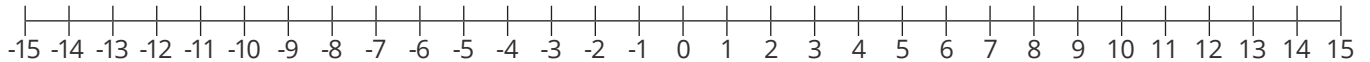
## Prior Knowledge:

Be able to perform the four operations with positive numbers.

A **negative** number is **less than** zero. A negative number is written with a minus sign in front.

The four operations are addition (+), subtraction (-), multiplication (×) and division (÷).

When adding and subtracting negative numbers, it may help to have a number line.



## Addition and Subtraction

### Example 1

Calculate  $-6 + 4$ .

Find the starting number. **-6**

Now, look at the sign immediately to the right of this number. This tells you whether to move right or left from your starting number; + tells you to go right, up the number line, and - tells you to move down, to the left.

In this question, you will move right (up the number line).

The second number tells you how many to move up or down, which, in this case will be 4.

$$-6 + 4 = -2$$

### Example 3

Calculate  $-6 - -9$ .

This question has two signs next to each other; when this happens, you can substitute the pair for a single function to simplify the calculation.

**++ or -- are replaced by +.**

**+ - or - + are replaced by -.**

So,  $-6 - -9$  becomes  $-6 + 9$ .

Following the same steps as before gives you an answer of **3**.

### Example 2

Calculate  $-3 - 5$ .

Find the starting number. **-3**.

Look at the sign immediately to the right of this number: -

This tells you to move down (left) along the number line.

5 tells you that this will be 5 places.

$$-3 - 5 = -8$$

### Example 4

Calculate  $-5 + -2$ .

**+ - or - + are replaced by -.**

$-5 + -2$  becomes  $-5 - 2$ .

$$-5 - 2 = -7$$



### Multiplication and Division

The methods for multiplying and dividing negative numbers are completely different from those for adding and subtracting.

Firstly, ignore any negative signs and complete the multiplication or division with positive numbers.

Once you have calculated the multiplication or division, now take note of the signs in the question.

If they are **both negative** or **both positive**, your answer will be **positive**.

If there is **one of each**, your answer will be **negative**.

#### Example 1

Calculate  $-7 \times 3$ .

Complete the multiplication with positive numbers.  $7 \times 3 = 21$

Now, look at the signs. There is a **negative** sign with 7 and there doesn't appear to be anything with 3. (If there doesn't appear to be a sign with a number, the number is positive.)

We have one of each so the answer will be negative.

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

#### Example 2

Calculate  $-45 \div -9$ .

Complete the division with positive numbers.  $45 \div 9 = 5$ .

Now, look at the signs. Both signs are **negative**, so the answer will be **positive**.

$$-45 \div -9 = 5$$

**Your Turn**

1. Calculate the following:

a.  $4 - 5$

\_\_\_\_\_

e.  $-4 + 3$

\_\_\_\_\_

i.  $-2 - -8$

\_\_\_\_\_

m.  $11 - 20$

\_\_\_\_\_

b.  $2 + -6$

\_\_\_\_\_

f.  $-7 + 11$

\_\_\_\_\_

j.  $10 - -9$

\_\_\_\_\_

n.  $43 - 56$

\_\_\_\_\_

c.  $10 - 12$

\_\_\_\_\_

g.  $-4 + -8$

\_\_\_\_\_

k.  $-2 - -16$

\_\_\_\_\_

o.  $-21 + -15$

\_\_\_\_\_

d.  $-10 + 2$

\_\_\_\_\_

h.  $-2 + -3$

\_\_\_\_\_

l.  $7 - -4$

\_\_\_\_\_

2. Calculate the following:

a.  $4 \times -2$

\_\_\_\_\_

f.  $-64 \div -4$

\_\_\_\_\_

k.  $-7 \times -13$

\_\_\_\_\_

p.  $(-12)^2$

\_\_\_\_\_

b.  $-11 \times 12$

\_\_\_\_\_

g.  $-9 \times -12$

\_\_\_\_\_

l.  $12 \div -0.5$

\_\_\_\_\_

q.  $(-8)^2$

\_\_\_\_\_

c.  $10 \times -8$

\_\_\_\_\_

h.  $24 \times -6$

\_\_\_\_\_

m.  $-1 \div -2$

\_\_\_\_\_

r.  $(-3)^3$

\_\_\_\_\_

d.  $-18 \div -3$

\_\_\_\_\_

i.  $-120 \div 4$

\_\_\_\_\_

n.  $-146 \times 6$

\_\_\_\_\_

e.  $-56 \div 7$

\_\_\_\_\_

j.  $685 \div -5$

\_\_\_\_\_

o.  $-254 \times -8$

\_\_\_\_\_

3. Complete the table.

+	-2	-1	2	5	10
-6				$-6 + 5 = -1$	
-10	$-10 + -2 = -12$				
2					
3			$3 + 2 = 5$		
-4					

4. Write down seven multiplications with an answer of -20.

\_\_\_\_\_

\_\_\_\_\_

### Challenge

Below are five cards, each with a number written on it.



a. Choose two suitable cards to make the calculation correct.

$$\square + \square = -1$$

b. Choose two cards that will give the smallest possible answer.

$$\square + \square = \underline{\hspace{2cm}}$$

c. Choose two cards that will give the greatest possible answer.

$$\square - \square = \underline{\hspace{2cm}}$$