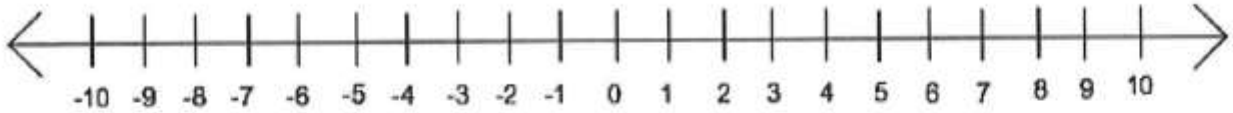


# 1. Number B Answers

## Directed Numbers

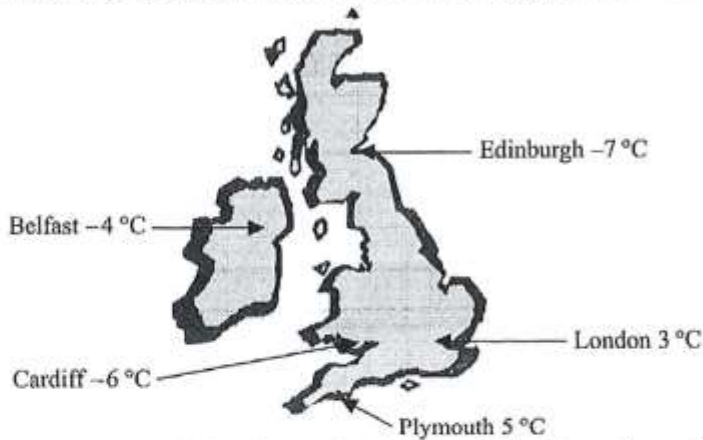
### Things to remember:

- Mixed means minus!
- Use a number line – if you're adding you need to move in a positive direction (right), if you're subtracting you need to move in a negative direction (left).



### Questions:

1. Here is a map of the British Isles.  
The temperatures in some places, one night last winter are shown on the map.



- (a) (i) Write down the names of the two places that had the biggest difference in temperature.

.....*Edinburgh*.....  
.....*Plymouth*.....

- (ii) Work out the difference in temperature between these two places.

.....*12*.....°C  
(3)

- (b) Two pairs of places have a difference in temperature of 2 °C.  
Write down the names of these places.

(i) .....*London*..... and .....*Plymouth*.....

(ii) .....*Belfast*..... and .....*Cardiff*.....

(2)  
(Total 5 marks)

2. Sally wrote down the temperature at different times on 1<sup>st</sup> January 2003.

Time	Temperature
midnight	-6 °C
4 am	-10 °C
8 am	-4 °C
noon	7 °C
3 pm	6 °C
7 pm	-2 °C

- (a) Write down

(i) the **highest** temperature,

..... 7 ..... °C

(ii) the **lowest** temperature.

..... -10 ..... °C

(2)

- (b) Work out the difference in the temperature between

(i) 4 am and 8 am,

..... 6 ..... °C

(ii) 3 pm and 7 pm.

..... 8 ..... °C

(2)

At 11 pm that day the temperature had fallen by 5 °C from its value at 7 pm.

- (c) Work out the temperature at 11 pm.

-2 - 5

..... -7 ..... °C

(1)

(Total 5 marks)

3. The table shows the temperature on the surface of each of five planets.

Planet	Temperature
Venus	480 °C
Mars	-60 °C
Jupiter	-150 °C
Saturn	-180 °C
Uranus	-210 °C

- (a) Work out the difference in temperature between Mars and Jupiter.

..... 90 ..... °C

(1)

- (b) Work out the difference in temperature between Venus and Mars.

..... 540 ..... °C

(1)

- (c) Which planet has a temperature 30 °C higher than the temperature on Saturn?

..... Jupiter .....

(1)

The temperature on Pluto is 20 °C lower than the temperature on Uranus.

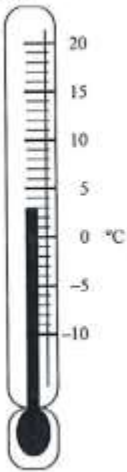
- (d) Work out the temperature on Pluto.

..... -230 ..... °C

(1)

(Total 4 marks)

4. (a) Write down the temperature shown on the thermometer.



..... 3 ..... °C  
(1)

The temperature falls by 8°C.

- (b) Work out the new temperature.

$$3 - 8$$

..... -5 ..... °C  
(1)

(Total 2 marks)

5. The table shows the highest and lowest temperatures one day in London and Moscow.

	Highest	Lowest
London	8°C	-6°C
Moscow	-3°C	-8°C

- (a) Work out the difference between the **lowest** temperature in London and the **lowest** temperature in Moscow.

..... 2 ..... °C  
(1)

- (b) Work out the difference between the **highest** and **lowest** temperature in London.

..... 14 ..... °C  
(1)

(Total 2 marks)

6. The table shows the midday temperatures in 4 different cities on Monday.

City	Midday temperature (°C)
Belfast	5
Cardiff	-1
Glasgow	-6
London	-4

- (a) Which city had the lowest temperature?

..... Glasgow .....  
(1)

- (b) Work out the difference between the temperature in Cardiff and the temperature in Belfast.

..... 6 ..... °C  
(1)

By Tuesday, the midday temperature in London had risen by 7 °C.

- (c) Work out the midday temperature in London on Tuesday.

$$-4 + 7$$

..... 3 ..... °C  
(1)

(Total 3 marks)

7. Mr Snow stayed some time at the South Pole.  
The highest temperature there was  $-30^{\circ}\text{C}$ .  
The lowest temperature there was  $-57^{\circ}\text{C}$ .  
(a) Work out the difference between the highest temperature and the lowest temperature at the South Pole.

.....27..... $^{\circ}\text{C}$   
(1)

- Mr Snow returned to his house in London.  
The temperature outside his house was  $-2^{\circ}\text{C}$ .  
The temperature inside his house was  $12^{\circ}\text{C}$  higher.  
(b) Work out the temperature inside his house.

.....10..... $^{\circ}\text{C}$   
(1)  
(Total 2 marks)

8. Write these temperatures in order. Start with the lowest temperature.

$7^{\circ}\text{C}$                    $-2^{\circ}\text{C}$                    $10^{\circ}\text{C}$                    $-5^{\circ}\text{C}$                    $3^{\circ}\text{C}$

..... $-5^{\circ}\text{C}, -2^{\circ}\text{C}, 3^{\circ}\text{C}, 7^{\circ}\text{C}, 10^{\circ}\text{C}$ .....  
(Total for question = 1 mark)

2. Write down the answer to

(a)  $3 - 7$

$$\begin{array}{r} -4 \\ \hline \end{array} \quad (1)$$

(b)  $-2 \times -7$

$$\begin{array}{r} 14 \\ \hline \end{array} \quad (1)$$

(c)  $21 \div -7$

$$\begin{array}{r} -3 \\ \hline \end{array} \quad (1)$$

(d)  $-100 \div -4$

$$\begin{array}{r} 25 \\ \hline \end{array} \quad (1)$$

---

3. Calculate

(a)  $(-54) \div (-9)$

$$\begin{array}{r} 6 \\ \hline \end{array} \quad (1)$$

(b)  $10 - (-2)$

$$\begin{array}{r} 12 \\ \hline \end{array} \quad (1)$$

4. Calculate

(a)  $3 \times -13$

-39

(1)

(b)  $-48 \div -8$

6

(1)

---

5. Complete the following.

(a)

$$20 \div \boxed{-5} = -4$$

(1)

(b)

$$-7 - \boxed{3} = -10$$

(1)

(c)

$$5 + \boxed{-5} = 0$$

(1)

(d)

$$-6 \times \boxed{-6} = 36$$

(1)

6. Work out each of the following

(a)  $5 - 8 + 1$

$$\begin{array}{r} -2 \\ \hline \end{array} \quad (1)$$

(b)  $7 - 9 - 2$

$$\begin{array}{r} -4 \\ \hline \end{array} \quad (1)$$

(c)  $-10 + 3 + 13$

$$\begin{array}{r} 6 \\ \hline \end{array} \quad (1)$$

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7. Work out each of the following

(a)  $7 - (-4)$

$$\begin{array}{r} 11 \\ \hline \end{array} \quad (1)$$

(b)  $-2 + (-3)$

$$\begin{array}{r} -5 \\ \hline \end{array} \quad (1)$$

(c)  $-6 - (-8)$

$$\begin{array}{r} 2 \\ \hline \end{array} \quad (1)$$



10. Fill in the missing numbers

(a)

$$\boxed{2} \times \boxed{-8} = \boxed{-16}$$

(1)

(b)

$$\boxed{-1} \times \boxed{-2} = \boxed{2}$$

(1)

(c)

$$\boxed{-6} \times \boxed{-7} = \boxed{42}$$

(1)

(d)

$$\boxed{-45} \div \boxed{3} = \boxed{-15}$$

(1)

11. Work out

(a)

$$(-3)^2 \quad -3 \times -3$$

$$\begin{array}{r} 9 \\ \hline \end{array}$$

(1)

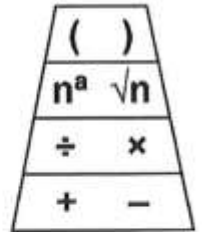
(b)

$$(-2)^3 \quad -2 \times -2 \times -2$$

$$\begin{array}{r} -8 \\ \hline \end{array}$$

(1)

## Order of Operations



### Things to remember:

- Brackets, indices, division and multiplication (left to right), addition and subtraction (left to right).

### Questions:

1. Work out

(i)  $2 \times 3 + 4$   
 $6 + 4$

10

(ii)  $10 - 2 \times 5$   
 $10 - 10$

0

(iii)  $16 \div (2 \times 4)$   
 $16 \div 8$

2

(Total 3 marks)

2. Beth says  $20 - 5 \times 3$  is 45

Pat says  $20 - 5 \times 3$  is 5

(a) Who is right?

Give a reason for your answer.

Pat is right because

Multiplication must be completed before subtraction.

(1)

(b) Work out  $(12 + 9) \div 3$   
 $21 \div 3$

7

(1)

(Total 2 marks)

3. Work out

(i)  $3 \times 3 - 5$   
 $9 - 5$

4

(ii)  $20 \div (12 - 2)$   
 $20 \div 10$

2

(iii)  $7 + 8 \div 4$   
 $7 + 2$

9

(Total 3 marks)

4. (a) Work out  $2 \times (11 + 9)$

$$2 \times 20$$

$$\text{-----} \quad 40$$

(1)

(b) Work out  $(3 \times 5) + 4$

$$15 + 4$$

$$\text{-----} \quad 19$$

(1)

(c) Work out  $20 - (5 \times 3)$

$$20 - 15$$

$$\text{-----} \quad 5$$

(1)

(Total 3 marks)

5. (a) Work out  $(4 \times 5) - 8$

$$20 - 8$$

$$\text{-----} \quad 12$$

(1)

(b) Work out  $18 + (2 \times 3)$

$$18 + 6$$

$$\text{-----} \quad 24$$

(1)

(c) Work out  $(4 + 3) \times 7$

$$7 \times 7$$

$$\text{-----} \quad 49$$

(1)

(Total 3 marks)

6. (a) Work out the value of  $(2 + 3) \times 4 + 5$

$$(5 \times 4) + 5$$

$$\text{-----} \quad 25$$

(1)

(b) Add brackets ( ) to make each statement correct.  
You may use more than one pair of brackets in each statement.

(i)  $2 + (3 \times 4 + 5) = 29$

(ii)  $(2 + 3) \times (4 + 5) = 45$

(2)

(Total 3 marks)