



## Negative numbers

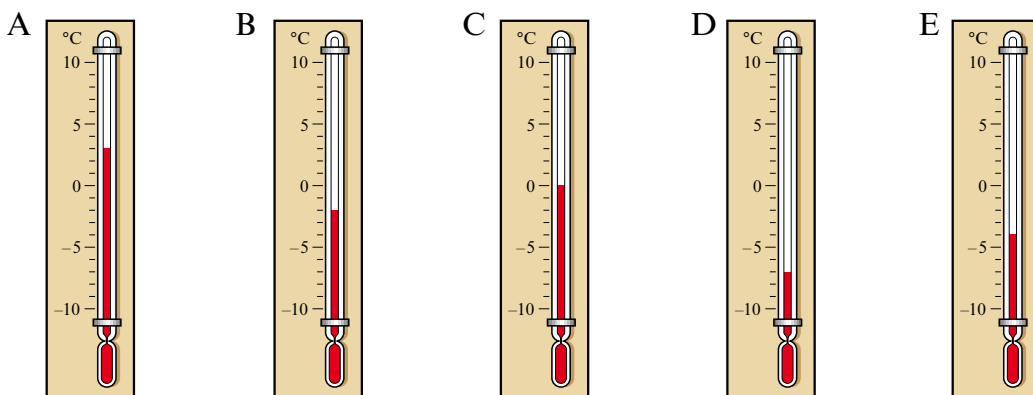
- Using a number line for positive and negative numbers
- Adding and subtracting using a number line

Keywords

You should know

### explanation 1

**1 a** Look at the thermometers below. Write each temperature in figures.



**b** Write the temperatures A–E in order. Start with the highest temperature.

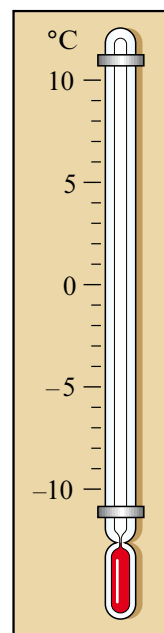
**2** Write these temperatures in order of size. Start with the highest.

- a** 6 °C, -5 °C, -2 °C, 4 °C, 0 °C, -1 °C
- b** 3 °C, -4 °C, 5 °C, -2 °C, -6 °C, 0 °C
- c** -8 °C, -3 °C, -5 °C, -10 °C, -1 °C, -7 °C

**3** The temperature in Glasgow was -2 °C. The temperature in Madrid was 7 °C higher. What was the temperature in Madrid?

**4** The temperature in Chester at midday was 3 °C. By midnight the temperature had fallen by 5 °C. What was the temperature in Chester at midnight?

**5** In Moscow the temperature at midday was -1 °C. By 4 p.m. the temperature had fallen by 6 °C. What was the new temperature?



**6** Has the temperature risen or fallen? By how much?

**a** From  $2^{\circ}\text{C}$  to  $-3^{\circ}\text{C}$

**b** From  $-4^{\circ}\text{C}$  to  $0^{\circ}\text{C}$

**c** From  $-3^{\circ}\text{C}$  to  $-5^{\circ}\text{C}$

**d** From  $-10^{\circ}\text{C}$  to  $-7^{\circ}\text{C}$

**e** From  $8^{\circ}\text{C}$  to  $-7^{\circ}\text{C}$

**f** From  $10^{\circ}\text{C}$  to  $-3^{\circ}\text{C}$

explanation 2a

explanation 2b

**7** Find the missing terms in these sequences. Use the number line on the right to help.

**a** 4, 2, 0, , ,

**b** 5, 3, 1, , ,

**c** 6, 3, 0, , ,

**d** -3, -1, 1, , ,

**e** -4, -2, 0, , ,

**f** 8, 5, , , -4,

**8** Which of the sequences in question 7 are decreasing sequences?

**9** Write these numbers in order of size, smallest first.

**a** 4, 7, -3, 0, -2, -5

**b** 6, -4, -10, 3, -5, 0

**c** 0, 2, -1, -9, -3, -6

**d** 3, -1, -3, -4, -8, 5

**10** For each statement decide which answer is true and which answer is false.

**a** Increase -2 by 1.    -1    -3

**b** Increase -4 by 4.    -8    0

**c** Increase -4 by 6.    3    2

**d** Decrease 3 by 5.    -2    -3

**e** Decrease 3 by 8.    -5    -4

**f** Decrease -3 by 2.    -1    -5

**11** Increase each number by 5.

**a** 7

**b** -2

**c** -8

**d** -5

**e** -9

**f** -1

**g** 0

**h** -10

**12** Decrease each number by 7.

**a** 11

**b** 3

**c** 0

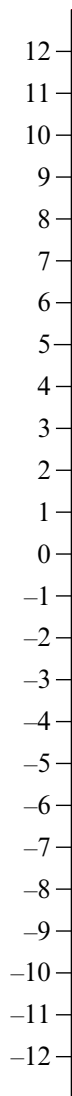
**d** 2

**e** -1

**f** -4

**g** 7

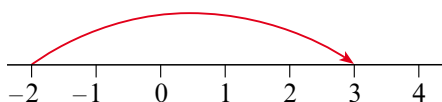
**h** 6



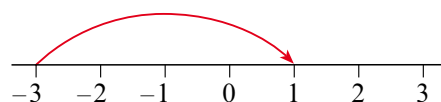
## explanation 3

**13** Write the calculations shown by these diagrams.

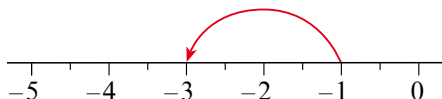
**a**



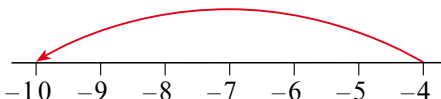
**b**



**c**



**d**



**14** Work out these calculations. Use number lines.

**a**  $3 - 8$

**b**  $-9 + 7$

**c**  $-3 - 6$

**d**  $-8 + 1$

**e**  $-10 + 10$

**f**  $-5 + 15$

**g**  $-3 + 11$

**h**  $-6 - 8$

**i**  $-7 + 3 + 1$

**j**  $-9 + 5 + 7$

**k**  $2 - 6 - 4$

**l**  $-11 + 6 + 9$

**15** Copy and complete these calculations.

**a**  $-6 + \square = 3$

**b**  $2 - \square = -8$

**c**  $-1 + \square = 6$

**d**  $-3 \square \square = -7$

**e**  $-5 \square \square = 3$

**f**  $-7 \square \square = -10$

**g**  $-4 \square \square = 0$

**h**  $-4 \square \square = 1$

**i**  $\square + 8 = 7$

**j**  $\square - 6 = -4$

**k**  $\square + 5 = -4$

**l**  $\square - 9 = -10$

**16** Copy and complete these addition grids.

**a**

+	-7	3	0	
	-11			
-2				-6
0				
		-2		

**b**

+	1	-4	-1	
	-3			-7
-5				
-2				
				-9