

1 In which direction (i.e. right or left) on a number line do you move for the following calculations?

a 2 is added to -5

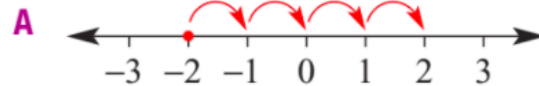
b 6 is added to -4

c 4 is subtracted from 2

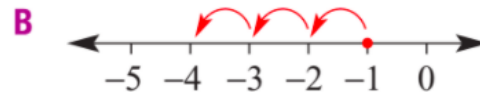
d 3 is subtracted from -4

2 Match up the problems **a** to **d** with the number lines **A** to **D**.

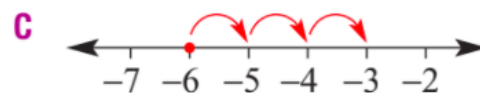
a $5 - 6 = -1$



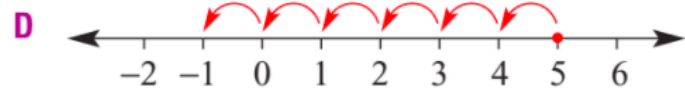
b $-2 + 4 = 2$



c $-1 - 3 = -4$



d $-6 + 3 = -3$



3 Calculate the answer to these additions. Check your answers using a calculator.

a $-1 + 2$

b $-1 + 4$

c $-3 + 5$

d $-10 + 11$

e $-4 + 3$

f $-5 + 2$

g $-11 + 9$

h $-20 + 18$

4 Calculate the answer to these subtractions. Check your answers using a calculator.

a $4 - 6$

b $7 - 8$

c $3 - 11$

d $1 - 20$

e $-3 - 1$

f $-5 - 5$

g $-2 - 13$

h $-7 - 0$

5 Find the missing number.

a $2 + \square = 7$

b $-2 + \square = 7$

c $-2 + \square = 3$

d $-4 + \square = -2$

e $5 - \square = 0$

f $3 - \square = -4$

g $-9 - \square = -12$

h $-20 - \square = -30$

6 Evaluate the following. Remember to work from left to right.

a $3 - 4 + 6$

b $2 - 7 - 4$

c $-1 - 4 + 6$

d $-5 - 7 - 1$

e $-3 + 2 - 7 + 9$

f $-6 + 1 - 20 + 3$

g $0 - 9 + 7 - 30$

h $-15 - 20 + 32 - 1$

7 Determine how much debt remains in these financial situations.

a owes \$300 and pays back \$155

b owes \$20 and borrows another \$35

c owes \$21 500 and pays back \$16 250

- 8 a** The reading on a thermometer measuring temperature rises 18°C from -15°C . What is the final temperature?
- b** The reading on a thermometer measuring temperature falls 7°C from 4°C . What is the final temperature?
- c** The reading on a thermometer measuring temperature falls 32°C from -14°C . What is the final temperature?
- 9** For an experiment, a chemical solution starts at a temperature of 25°C , falls to -3°C , rises to 15°C and then falls again to -8°C . What is the total change in temperature? Add all the changes together for each rise and fall.

- 10** An ocean sensor is raised and lowered to different depths in the sea. Note that -100 metres means 100 metres below sea level.



- a** If the sensor is initially at -100 metres and then raised to -41 metres, how far does the sensor rise?
- b** If the sensor is initially at -37 metres and then lowered to -93 metres, how far is the sensor lowered?

- 11** Give an example that suits the description.

- a** A positive number subtract a positive number equals a negative number.
- b** A negative number subtract a positive number equals a negative number.
- c** A negative number add a positive number equals a positive number.
- d** A negative number add a positive number equals a negative number.

- 12 a** a is a positive integer, b is a positive integer and $a > b$. For each of the following, decide if the result will be positive, negative or zero.

- i** $a + b$ **ii** $a - b$ **iii** $b - a$ **iv** $a - a$

- b** a is a negative integer and b is a positive integer. Decide if each of the following is *always* true.

- i** $a + b$ is positive **ii** $a - b$ is negative

- 13** Insert $+$ or $-$ signs into these statements to make them true.

a $3 \square 4 \square 5 = 4$

b $1 \square 7 \square 9 \square 4 = -5$

c $-4 \square 2 \square 1 \square 3 \square 4 = 0$

d $-20 \square 10 \square 7 \square 36 \square 1 \square 18 = -4$

e $-a \square b \square a \square b = 0$

f $-a \square a \square 3a \square b \square b = a - 2b$

- 1** Write down the missing numbers in these sentences. The first one has been done for you
- a** $2 + 5$ means that 5 is added to 2.
 - b** $-3 + 6$ means that is added to .
 - c** $1 + (-3)$ means that is added to .
 - d** $-7 + (-11)$ means that is added to .
 - e** $5 - 3$ means that is subtracted from .
 - f** $-2 - 6$ means that is subtracted from .
 - g** $7 - (-3)$ means that is subtracted from .
 - h** $-7 - (-11)$ means that is subtracted from .
- 2** Complete these sentences.
- a** Adding -4 is equivalent to subtracting .
 - b** Adding -6 is equivalent to _____ 6.
 - c** Adding 5 is equivalent to subtracting .
 - d** Adding -11 is equivalent to _____ 11.
 - e** Subtracting -2 is equivalent to adding .
 - f** Subtracting -7 is equivalent to _____ 7.
- 3** State whether each of the following is true or false.
- a** $2 + (-3) = 5$ **b** $10 + (-1) = 9$ **c** $-5 + (-3) = -8$ **d** $-6 + (-2) = -4$
 - e** $5 - (-1) = 4$ **f** $3 - (-9) = 12$ **g** $2 - (-3) = 1$ **h** $-11 - (-12) = -1$
- 4** Calculate the answer to each of these additions. Check your answer using a calculator.
- a** $3 + (-2)$ **b** $8 + (-3)$ **c** $12 + (-6)$ **d** $9 + (-7)$
 - e** $1 + (-4)$ **f** $6 + (-11)$ **g** $20 + (-22)$ **h** $0 + (-4)$
- 5** Calculate the answer to each of these subtractions. Check your answer using a calculator.
- a** $2 - (-3)$ **b** $5 - (-6)$ **c** $20 - (-30)$ **d** $29 - (-61)$
 - e** $-5 - (-1)$ **f** $-7 - (-4)$ **g** $-11 - (-6)$ **h** $-41 - (-7)$
- 6** Find the missing number.
- a** $2 + \square = -1$ **b** $3 + \square = -7$ **c** $-2 + \square = -6$ **d** $\square + (-3) = 1$
 - e** $\square + (-10) = -11$ **f** $\square + (-4) = 0$ **g** $5 - \square = 6$ **h** $2 - \square = 7$

7 Calculate the answer, working from left to right.

a $3 + (-2) + (-1)$

b $2 + (-1) + (-6)$

c $3 - (-1) - (-4)$

d $10 - (-6) + (-4)$

e $-7 - (-1) + (-3)$

f $-20 - (-10) - (-15)$

g $-9 - (-19) + (-16)$

h $-15 - (-20) + (-96)$

i $-13 - (-19) + (-21)$

j $-2 - (-3) - (-5)$

k $-18 - (-16) - (-19)$

l $5 + (-20) - (-26)$

8 A diver is at a height of -90 metres from the surface of the sea. During a diving exercise, the diver rises 50 metres, falls 138 metres and then rises once again by 35 metres. What is the diver's final height from sea level?

9 A small business has a bank balance of $-\$50\,000$. An amount of $\$20\,000$ of extra debt is added to the balance and, later, $\$35\,000$ is paid back. What is the final balance?

10 $\$100$ of debt is added to an existing balance of $\$50$ of debt. Later, $\$120$ of debt is removed from the balance. What is the final balance?

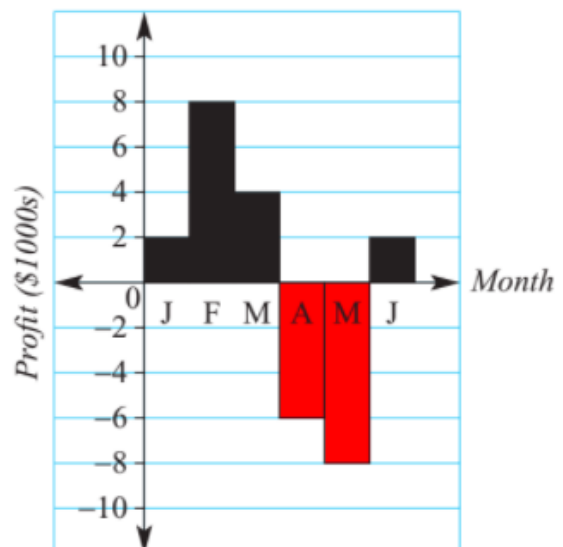
11 Here is a profit graph showing the profit for each month of the first half of the year for a bakery shop.

a What is the profit for:

i February?

ii April?

b What is the overall profit for the 6 months?



12 Complete these magic squares, using addition. The sum of each row, column and diagonal should be the same.

a

-2		5
	1	
		4

b

		-6
-3		-17
		-7