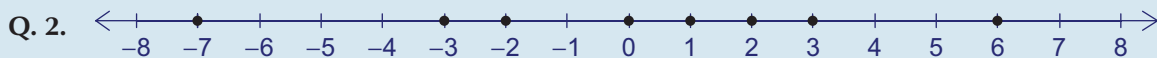


## Chapter 4 Exercise 4.1

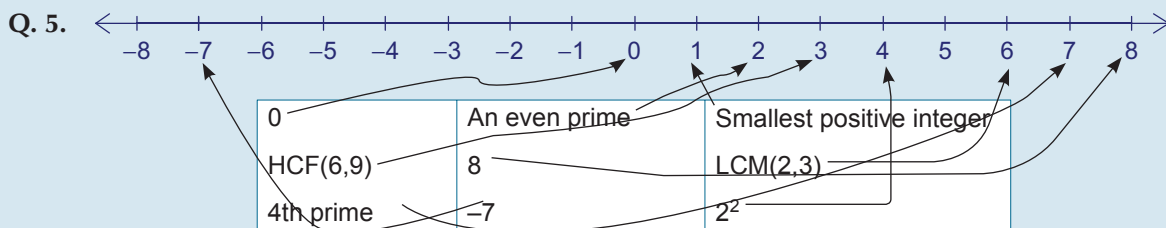
- Q. 1. (i)  $A = 3, B = -2, C = 6, D = -5$   
 (ii)  $A = 2, B = 0, C = 7, D = -4$   
 (iii)  $A = -1, B = 4, C = -6, D = 5$



-2	0	1
5	3	-7
2	6	-3

- Q. 3. (i)  $\{-20, -16, 0, 9, 12\}$  (iii)  $\{-21, -18, -2, 25, 29\}$   
 (ii)  $\{-14, 0, 12, 16, 29\}$  (iv)  $\{-146, -106, -47, 140, 271\}$

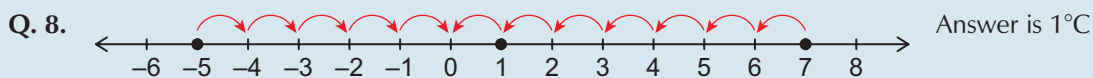
- Q. 4. (i)  $\{9999, 1000, -1000, -9999\}$  (iii)  $\{8530, 4530, -970, -4370, -4880, -9840\}$   
 (ii)  $\{101, 8, 0, -8, -101\}$  (iv)  $\{1000, 100, -10, -100, -1000\}$



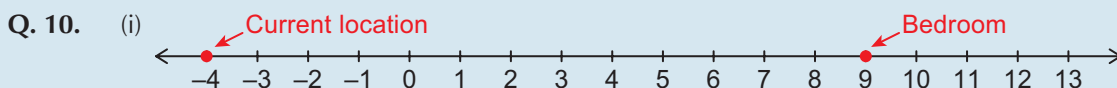
Q. 6.

A	B
The temperature when $-3^\circ\text{C}$ cools by $1^\circ\text{C}$	0
The temperature when $-3^\circ\text{C}$ warms by $1^\circ\text{C}$	1
The smallest prime number	-2
The largest negative integer	-1
The smallest positive integer	2
Zero	8
LCM(2,8)	-4

Q. 7. Difference =  $89 + 15 = 104^\circ\text{C}$ .



- Q. 9. (i) -3    2    (iii) 5    4    (v) 2    -2    (vii) 0    4    (ix) -3    -2  
 (ii) 5    -5    (iv) 2    -3    (vi) -5    -3    (viii) -4    0    (x) 8    -5

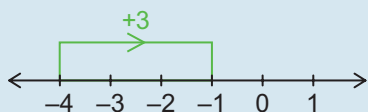


(ii)  $4 + 9 = 13$  levels

**Q. 11.**  $2 + 1 - 1 + 2 - 2 + 3 - 1 + 2 + 4$   
 $= 2 + 1 + 2 + 3 + 2 + 4 - 1 - 2 - 1$   
 $= 14 - 4$   
 $= 10$  over par

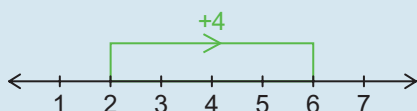
## Exercise 4.2

**Q. 1.** (i)



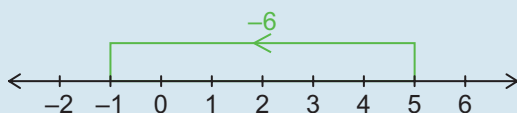
$$-4 + 3 = -1$$

(ii)



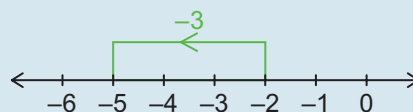
$$2 + 4 = 6$$

(iii)



$$5 - 6 = -1$$

(iv)



$$-2 - 3 = -5$$

(v)  $-4 + 5 = 1$

(vi)  $-5 + 3 = -2$

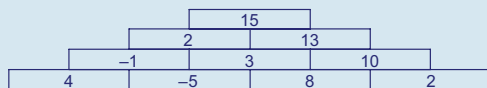
(vii)  $-3 - 2 = -5$

(viii)  $4 - 6 = -2$

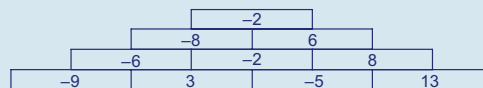
(ix)  $-5 + 5 = 0$

(x)  $1 - 4 = -3$

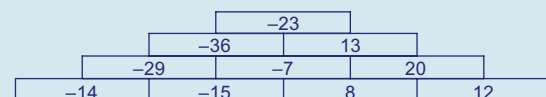
**Q. 2.** (i)



(ii)



(iii)



**Q. 3.** (i) 1

(ii) 4

(iii) -3

(iv) -5

(v) -11

(vi) -11

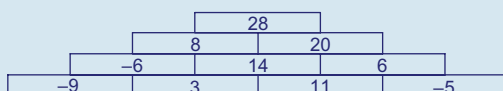
(vii) 4

(viii) -4

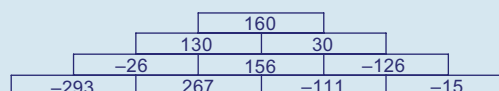
(ix) -6

(x) -6

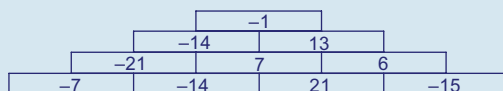
**Q. 4.** (i)



(iii)



(ii)



**Q. 5.**  $P = -11$ ;  $Q = 25$ ;  $R = -17$ ;  $S = 4$

**Q. 6.** (i)  $3 + 1 - 2 = 4 - 2 = 2$

(vi)  $5 + 8 - 5 - 2 = 13 - 7 = 6$

(ii)  $3 - 10 = -7$

(vii)  $5 + 4 - 5 - 4 = 9 - 9 = 0$

(iii)  $5 + 3 - 6 - 2 = 8 - 8 = 0$

(viii)  $2 - 5 - 8 - 3 = 2 - 16 = -14$

(iv)  $8 + 1 - 2 - 5 = 9 - 7 = 2$

(ix)  $5 + 3 - 8 - 2 = 8 - 10 = -2$

(v) -18

(x)  $8 + 7 - 7 - 8 = 15 - 15 = 0$

**Q. 7.**  $J = 3; K = -27; L = 10; M = -18$

**Q. 8.** (i)  $5 + 23 = 28$

(ii)  $3 - 22 = -19$

(iii)  $7 - 2 = 5$

(iv)  $-7 - 5 = -12$

(v)  $3 - 12 = -9$

(vi)  $-15 - 10 = -25$

(vii)  $12 - 5 + 8 = 15$

(viii)  $-3 - 5 - 2 + 12 = 2$

(ix)  $2 = 5 - 3 + 0$

(x)  $15 = 8 - 7 + 14$

**Q. 9.**  $500 - 300 + 100 - 700 + 100$   
 $= 500 + 100 + 100 - 300 - 700$   
 $= 700 - 1000$   
 $= -300$   
 Balance is  $-\text{€}300$

**Q. 10.** (i)  $5 + 5 + 5 + 5 + 5 + 1 + 1 - 2 - 2 - 2$   
 $= 27 - 6 = 21$  marks  $\leftarrow$  Alice

(ii)  $5 + 5 + 5 + 5 + 5 + 5 - 2 + 1 + 1$   
 $= 33 - 2 = 31$  marks  $\leftarrow$  Bob

(iii)  $-2 - 2 - 2 - 2 + 1 + 5 + 5 + 5 + 5 + 5$   
 $= 26 - 8 = 18$  marks  $\leftarrow$  Kylie

**Q. 11.** (i) 765 (ii) 56

**Q. 12.**  $-1,500 + 400 + 100 - 200$   
 $= 500 - 1,700$   
 $= -1,200$   
 $-1,200 + 600$   
 $= -600$

$-600 - 100$

$= -700$

$= -\text{€}700$

No. He still owes  $\text{€}700$ .

### Exercise 4.3

**Q. 1.** (i)

x	3	5	8
-9	-27	-45	-72
-6	-18	-30	-48
-2	-6	-10	-16

(ii)

x	0	1	3	4
-4	0	-4	-12	-16
-3	0	-3	-9	-12
-2	0	-2	-6	-8
-1	0	-1	-3	-4

**Q. 2.** (i)

x	-10	-7	-4
-8	80	56	32
-5	50	35	20
-1	10	7	4

(ii)

x	10	100	1,000
-20	-200	-2,000	-20,000
-10	-100	-1,000	-10,000
-1	-10	-100	-1,000

**Q. 3.** (i) 30 (v) 40 (viii) 90  
 (ii) -30 (vi) -32 (ix) 90  
 (iii) -30 (vii) -56 (x) -150  
 (iv) 30

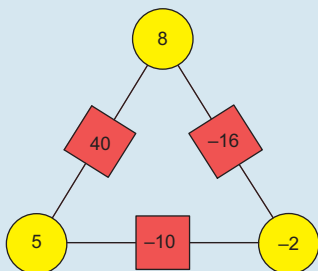
**Q. 4.** (i) 5 (v) 4 (viii) -12  
 (ii) -4 (vi) 3 (ix) 2  
 (iii) 3 (vii) -6 (x)  $-5^2 = -25$   
 (iv) -3

**Q. 5.** (i) 75 (v) -5 (viii) -1  
 (ii) -96 (vi) 3 (ix) 11  
 (iii) -42 (vii) 9 (x) -122  
 (iv) 44

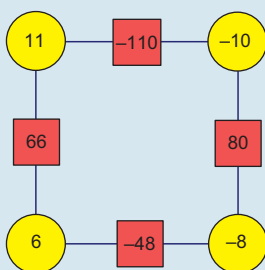
Q. 6.

A	B
The product of a positive integer and a negative integer	0
Your lucky number multiplied by zero	$-x$
The product of two negative integers	Negative integer
The number of students in your class multiplied by 1	13
The sum of this integer and $x$ is zero.	Positive integer
The opposite of $-4$	The number of students in your class
13 divided by 1	4

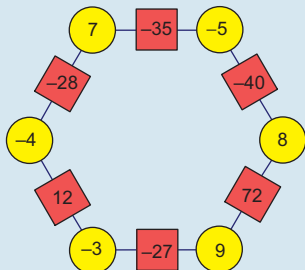
Q. 7. (i)



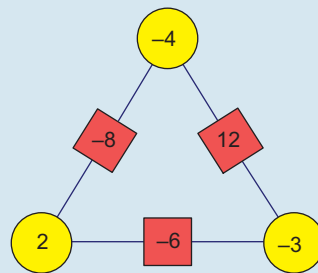
(ii)



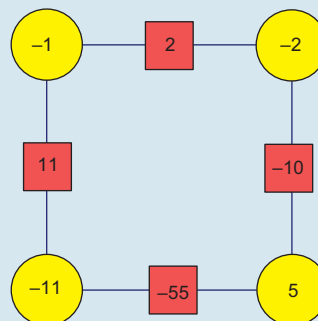
(iii)



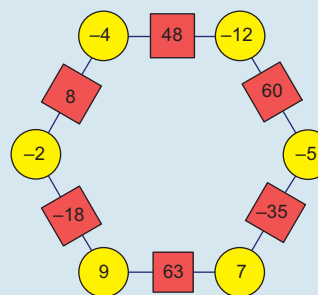
Q. 8. (i)



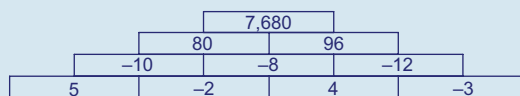
(ii)



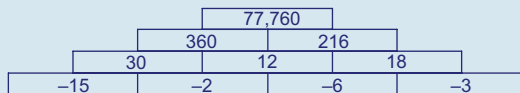
(iii)



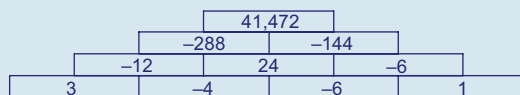
Q. 9. (i)



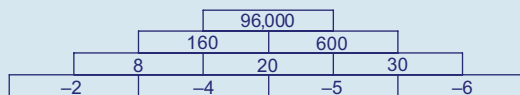
(ii)



(iii)



(iv)



- Q. 10. (i) 4      (v) 1      (ix) 36  
(ii) 9      (vi) 8      (x) 64  
(iii) 16      (vii) 27      (xi) 1,000  
(iv) 1      (viii) 25      (xii) 125

- Q. 11.** (i) 4           (v) 16           (viii) -2  
(ii) 9           (vi) -27          (ix) -32  
(iii) 16       (vii) 36          (x) 64  
(iv) -8

## Exercise 4.4

**Q. 1.** (i)  $6 - 12 = -6$    (iii)  $-6 + 20 = 14$   
(ii)  $20 - 6 = 14$    (iv)  $-6 - 15 = -21$

**Q. 2.** (i)  $3 + 8 + 18$    (iii)  $5 + 0 - 15$   
 $= 29$                         $= -10$   
(ii)  $5 - 6 - 8$    (iv)  $8 - 6 + 7$   
 $= 5 - 14$                 $= 15 - 6$   
 $= -9$                       $= 9$

**Q. 3.** (i)  $2 \times 7 + 5 \times 1$   
 $= 14 + 5$   
 $= 19$   
(ii)  $2 \times (-3) + 3 \times (-4)$   
 $= -6 - 12$   
 $= -18$   
(iii)  $5 \times (-1) + 6 \times 3$   
 $= -5 + 18$   
 $= 13$   
(iv)  $5 \times (-6) + 3 \times (-5)$   
 $= -30 - 15$   
 $= -45$

**Q. 4.** (i)  $5(1)^2 + 4(1) + 5$   
 $= 5(1) + 4(1) + 5$   
 $= 5 + 4 + 5$   
 $= 14$   
(ii)  $3(4)^2 + 2(1) + 7$   
 $= 3(16) + 2(1) + 7$   
 $= 48 + 2 + 7$   
 $= 57$   
(iii)  $2(4)^2 + 3(4) + 4$   
 $= 2(16) + 3(4) + 4$   
 $= 32 + 12 + 4$   
 $= 48$

(iv)  $2(8) + 2(4) + 2(2)$   
 $= 16 + 8 + 4$   
 $= 28$

**Q. 5.** (i) 0           (iii) -9           (v) 9  
(ii) 6           (iv) -1           (vi) -27

**Q. 6.** (i)  $16 + 9 = 25$    (iii)  $-25 - 25 = -50$   
(ii)  $-8 - 25 = -33$  (iv)  $49 - 9 = 40$

**Q. 7.** (i)  $1 \times 9 = 9$    (iii)  $-125 \div 25 = -5$   
(ii)  $25 \times 4 = 100$  (iv)  $64 - 4 = 60$

**Q. 8.** (i)  $2(-9) = -18$   
(ii)  $5(-1) - 3(-3)$   
 $= -5 + 9$   
 $= 4$

(iii)  $3(-3)^2 - 5(3)^3$   
 $= 3(9) - 5(27)$   
 $= 27 - 135$   
 $= -108$

(iv)  $2(2)^2 - 3(-1)^{10}$   
 $= 2(4) - 3(1)$   
 $= 8 - 3$   
 $= 5$

**Q. 9.** (i)  $49 \div (-7)^2$   
 $= 49 \div 49$   
 $= 1$   
(ii)  $-5(4)^2 - 2(4) - 20$   
 $= -5(16) - 2(4) - 20$   
 $= -80 - 8 - 20$   
 $= 108$   
(iii)  $-12 \times 3 - 24 \div 4$   
 $= -36 - 6$   
 $= -42$   
(iv)  $(3 - 10)^2$   
 $= (-7)^2$   
 $= 49$

**Q. 10.** (i)  $4(-7)^2 - 3(-2)^2 + 6(-3)^3$   
 $= 4(49) - 3(4) + 6(-27)$   
 $= 16 - 12 - 162$   
 $= 16 - 174$   
 $= -158$

(ii)  $5(-3)^3 + 5(3)^2 - 10 \div 2$   
 $= 5(-27) + 5(9) - 10 \div 2$   
 $= -135 + 45 - 5$   
 $= 45 - 140$   
 $= -95$

(iii)  $-5(-5)^2 - 3(-6)^2 + 12(-1)^{49}$   
 $= -5(25) - 3(36) + 12(-1)$   
 $= -125 - 108 - 12$   
 $= -245$

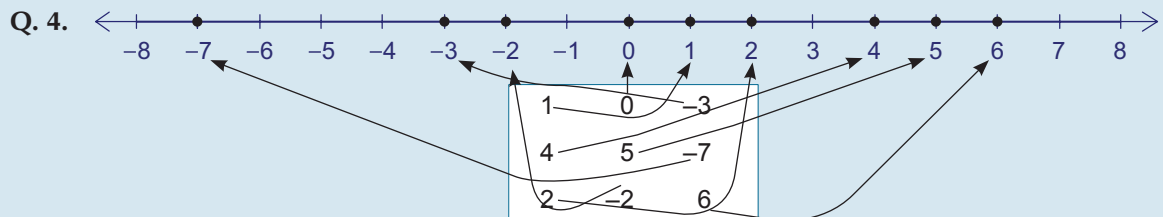
(iv)  $6(-1)^{50} + 8 \times 3 - 20$   
 $= 6(1) + 8 \times 3 - 20$   
 $= 6 + 24 - 20$   
 $= 10$

## Revision Exercises

**Q. 1.** (i) -3      (iii) -3      (v) -1  
(ii) 3      (iv) 0      (vi) -1

**Q. 2.** (i) 0      (iii) 18      (v) 13  
(ii) 0      (iv) 22      (vi) -6

**Q. 3.** (i) 13      (iii) 13      (v) -1      (vii) 94  
(ii) 3      (iv) -6      (vi) 24      (viii) 53



**Q. 5.** A = -1; B = 4; C = -6; D = 5

**Q. 6.** (i)  $\{-20, -24, -28, -29\}$       (iii)  $\{-29, -20, 24, 28\}$   
(ii)  $\{20, 24, 28, 29\}$       (iv)  $\{-28, -20, 20, 29\}$

**Q. 7.** (i)  $\pm 456, \pm 465, \pm 546, \pm 564, \pm 645, \pm 654.$   
(ii)  $-654, -645, -564, -546, -465, -456, 456, 465, 546, 564, 645, 654.$

**Q. 8.** A = -6; B = -4; C = -15; D = -17

**Q. 9.** P = -4; Q = -24; R = -2; S = 4

**Q. 10.** W = -4; X = -2; Y = -1; Z = 4

- Q. 11.** (i)  $3 \times 4 = 12$   
(ii)  $4 \div -2 = -4$   
(iii)  $3 + 7 = 10$   
(iv)  $10 \div -2 = -5$   
(v)  $-10 \div -5 = 2$   
(vi)  $(3 + 4)^2 - 9 = 40$   
(vii)  $-245 + (-3 - 2)^3 = -120$   
(viii)  $3^3 + (24 - (51)) = 0$   
(ix)  $5^2 + (24 - (49)) = 0$

- Q. 12.** (i)  $5 > 3$       (iii)  $-5 < -3$   
(ii)  $-5 < 3$       (iv)  $5 > -3$

**Q. 13.**

x	-8	-2	2	3	5
-20	160	40	-40	-60	-100
-15	120	30	-30	-45	-75
-10	80	20	-20	-30	-50
-4	32	8	-8	-12	-20
-2	16	4	-4	-6	-10

- Q. 14.**  $-19 + 6 \times 2$   
 $= -19 + 12$   
 $= -7^\circ\text{C}$

- Q. 15.**  $(-65 + 16) - (-65 - 8 + 12)$   
 $= -49 - (-61)$   
 $= -49 + 61$   
 $= 12 \text{ metres.}$   
or  
 $8 + 16 - 12$   
 $= 24 - 12$   
 $= 12 \text{ metres}$