Integers

Text & Tests 1

Common Introductory Course
for First-Year Maths

Section 2.2 Adding and subtracting integers

① When the signs are the same
ADD and keep the same sign.

$-1-2-3-4 = -10$

$2+4+9 = 15$

② When the signs are DIFFERENT
SUBTRACT AND KEEP THE SIGN of the
BIGGER NUMBER   Eg $(-7)+4(-3)$

$$\begin{array}{r} -10 \\ +4 \\ \hline -6 \end{array}$$
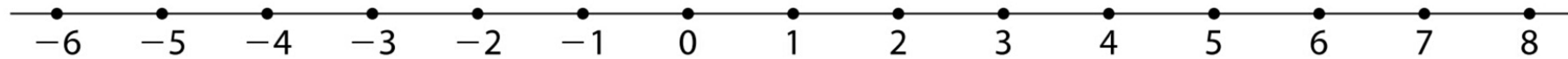
Example 1

Express each of these as a single integer:

(i) $-4 - 8$ (ii) $-7 + 2$ (iii) $-2 + 5 - 13 + 6$

1. Work out the following calculations using the number line.

$$\text{---•---•---•---•---•---•---•---•---•---•---•---•---•---•---}$$

$-6 \quad -5 \quad -4 \quad -3 \quad -2 \quad -1 \quad 0 \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7 \quad 8$

(i) $3 - 5$ (ii) $2 - 6$ (iii) $0 - 3$ (iv) $1 - 4$
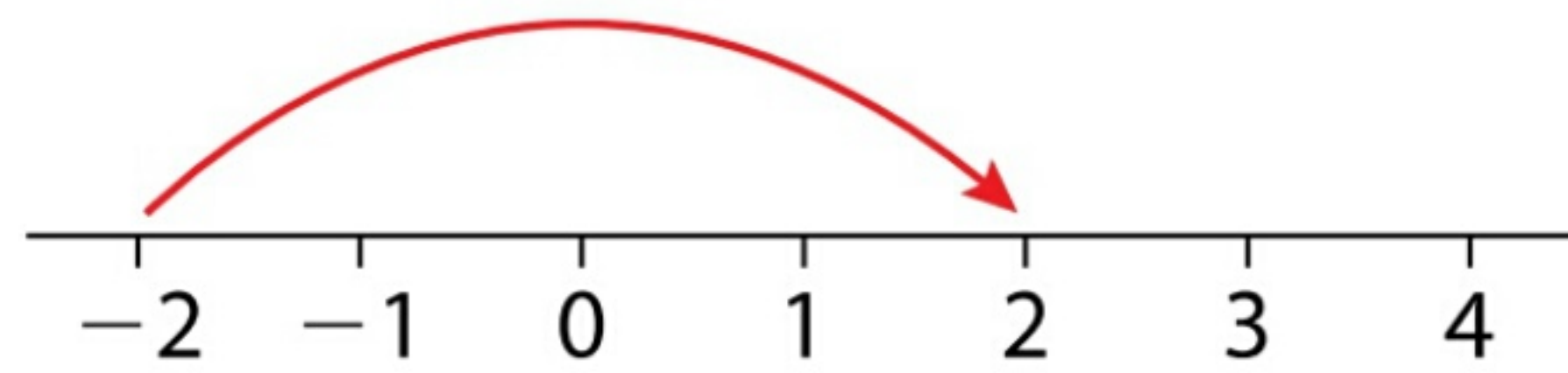
(v) $-1 + 4$ (vi) $-2 + 7$ (vii) $-1 - 3$ (viii) $-2 - 4$

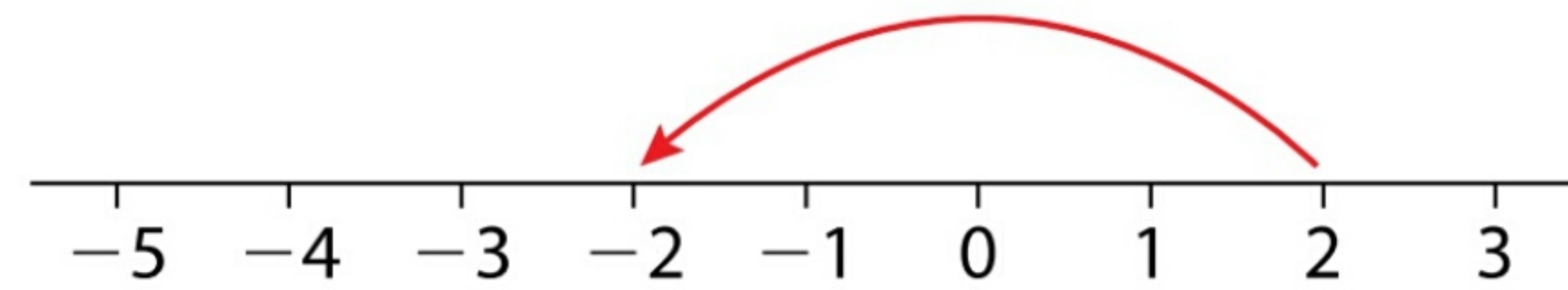**2.** Write down the calculation represented by each diagram:
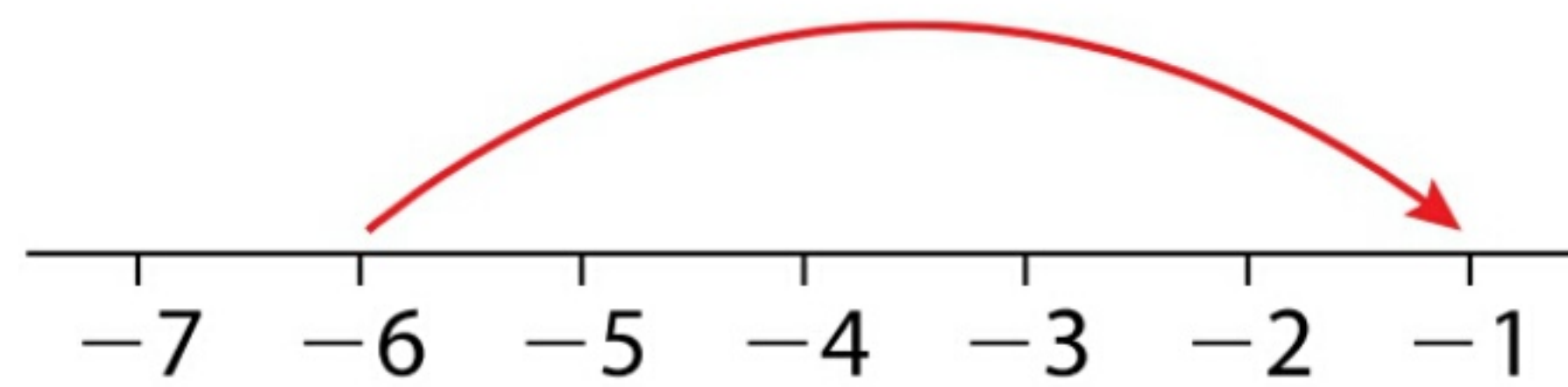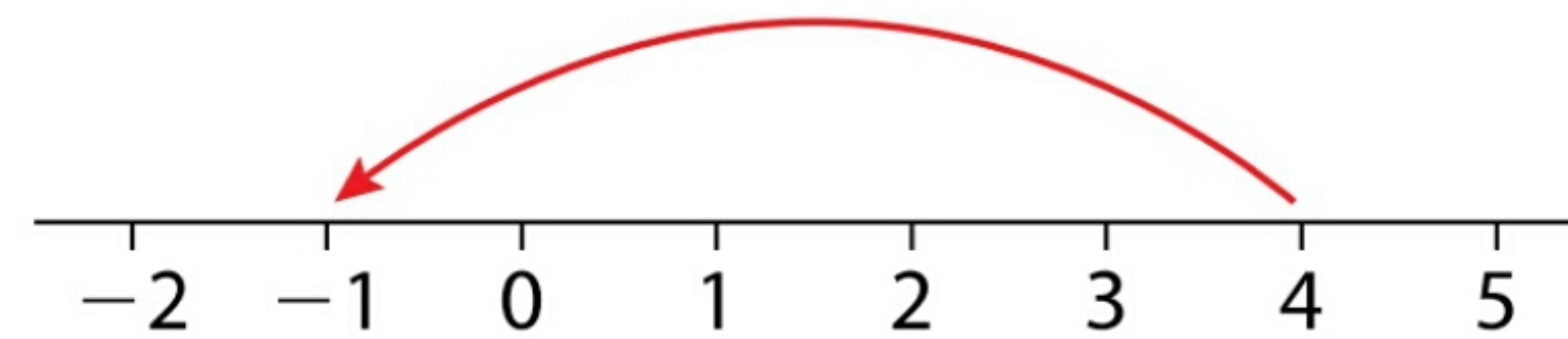
(i)

(ii)

(iii)

(iv)

3. Express each of the following as a single number.

    (i) $3 + 7$ (ii) $6 - 4$ (iii) $12 - 5$ (iv) $-8 + 6$

    (v) $-10 + 3$ (vi) $2 - 8$ (vii) $-12 + 7$ (viii) $-16 + 12$

4. Simplify each of these:

(i) $-1 - 2$ (ii) $-9 + 3$ (iii) $-4 - 2$ (iv) $1 - 8$

(v) $-7 - 4$ (vi) $-2 + 12$ (vii) $-12 - 3$ (viii) $-20 - 30$

Express numbers 5 to 16 as a single number.

5. $6 + 7 - 5$

$= 8$

6. $12 + 4 - 8$

$= 8$

7. $14 - 3 - 2$

$= 9$

Express numbers 5 to 16 as a single number.

8. $16 - 5 - 3$

$= 8$

9. $20 - 5 - 8$

$= -5$
-8
$\overline{-13}$

$20 - 13$
$= 7$

10. $3 - 7 + 9$

$= 5$

Express numbers 5 to 16 as a single number.

11. $6 - 2 - 9$

$= -5$

12. $-3 + 7 - 1$

$= 3$

13. $6 - 9 + 12$

$= 9$

Express numbers 5 to 16 as a single number.

14. $12 - 9 + 4 - 3$

$$= 4$$

15. $12 \; \boxed{-8} + 9 \; \boxed{-4}$

$$= 9$$

$$-8 - 4 = -12$$

$$12 + 9 = +21$$

$$+ 9$$

16. $\boxed{-7} \; \boxed{-3} + 4 + 8$

$$-7 - 3 = -10$$

$$+4 + 8 = +12$$

$$+2$$

17. Copy and complete these calculations:

(i) $\boxed{3} + 6 = 9$

(ii) $-7 + \boxed{11} = 4$

(iii) $\boxed{-9} + 3 = -6$

(iv) $-9 + \boxed{3} = -6$

(v) $-6 - \boxed{-20} = 14$

(vi) $\boxed{-9} + 5 = -4$

$$-6 + 20 = 14$$

$$-6 - (20) = -26$$

18. Copy and complete these addition squares:

(i)

+	7	−1	−5	−4
−1	6	−2	−6	−5
−3	4	−4	−8	−7
2	9	1	−3	−2
−4	3	−5	−9	−8

$-4 + 2 = -2$

(ii)

+	−5	3	+8	+1
−1	−6	2		0
+2			10	
4		7		5
−2			6	−1

H/W Pg 40/41 Q18 → 22

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19. Copy and complete these addition pyramids.

(i)

$-2 \quad 3 \quad -7 \quad 2$

(ii)

-7
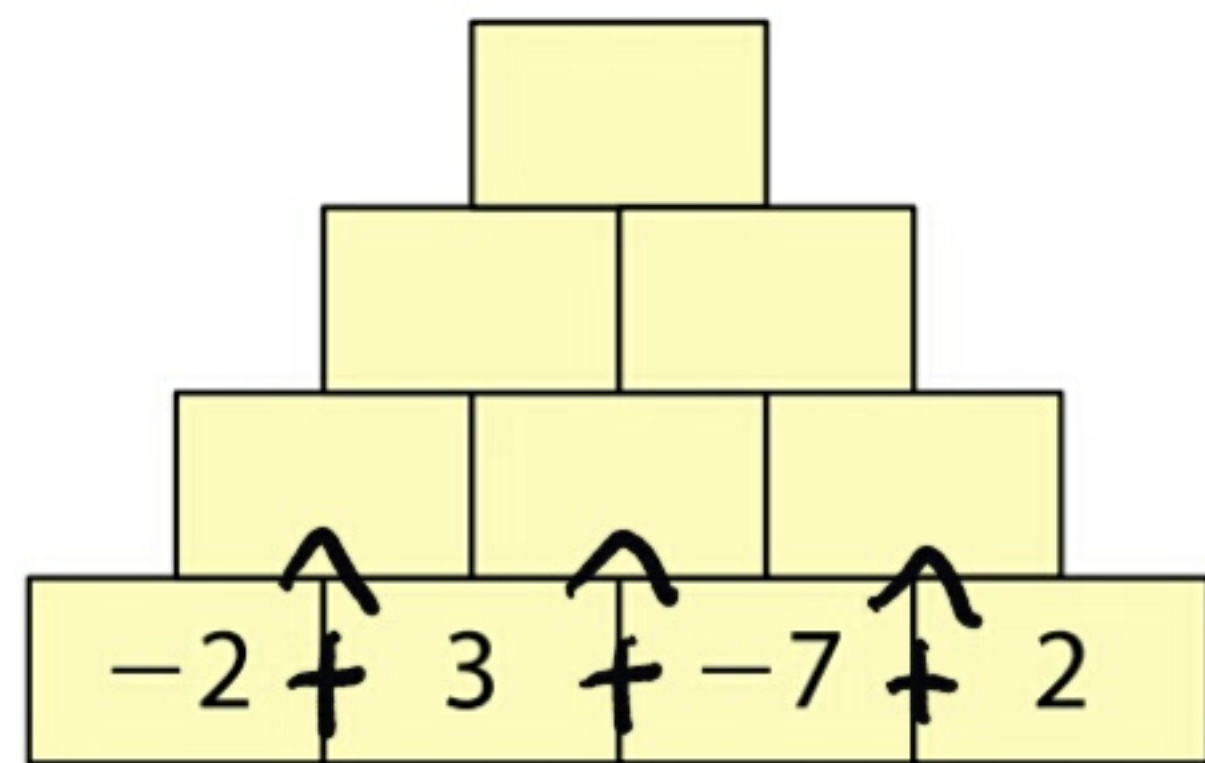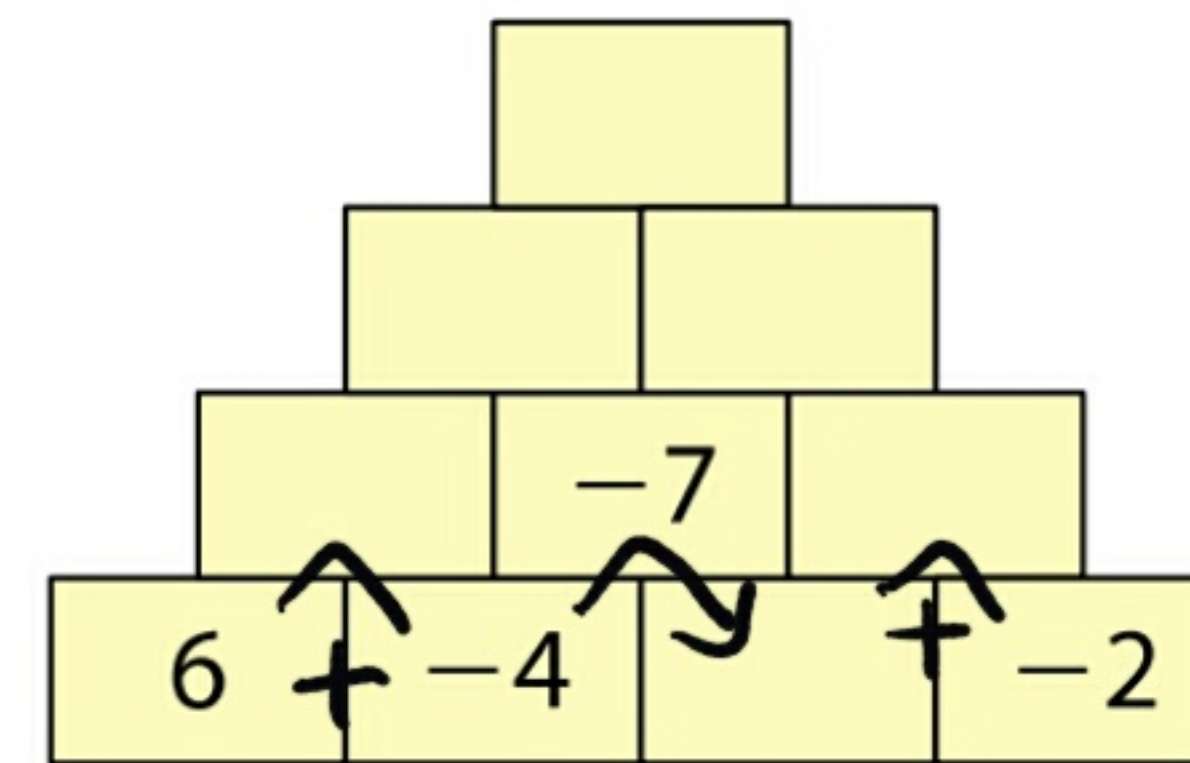
$6 \quad -4 \quad -2$

20. In a magic square each row, each column and each diagonal adds up to the same number.

Now copy and complete each of these magic squares.

(i)

−8	−1	−6
	−5	

= −15

(ii)

2	1	−3
	0	

= 0

(iii)

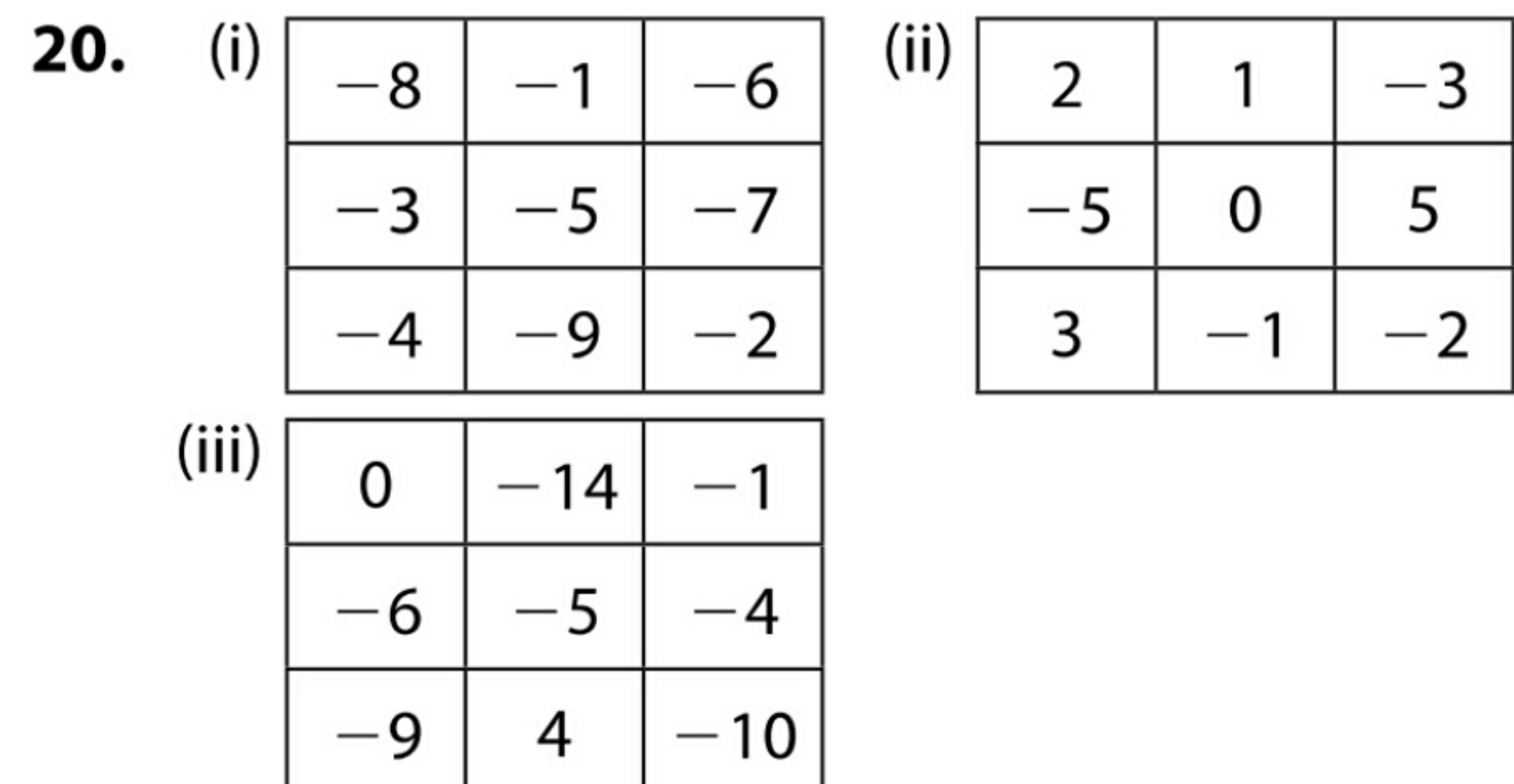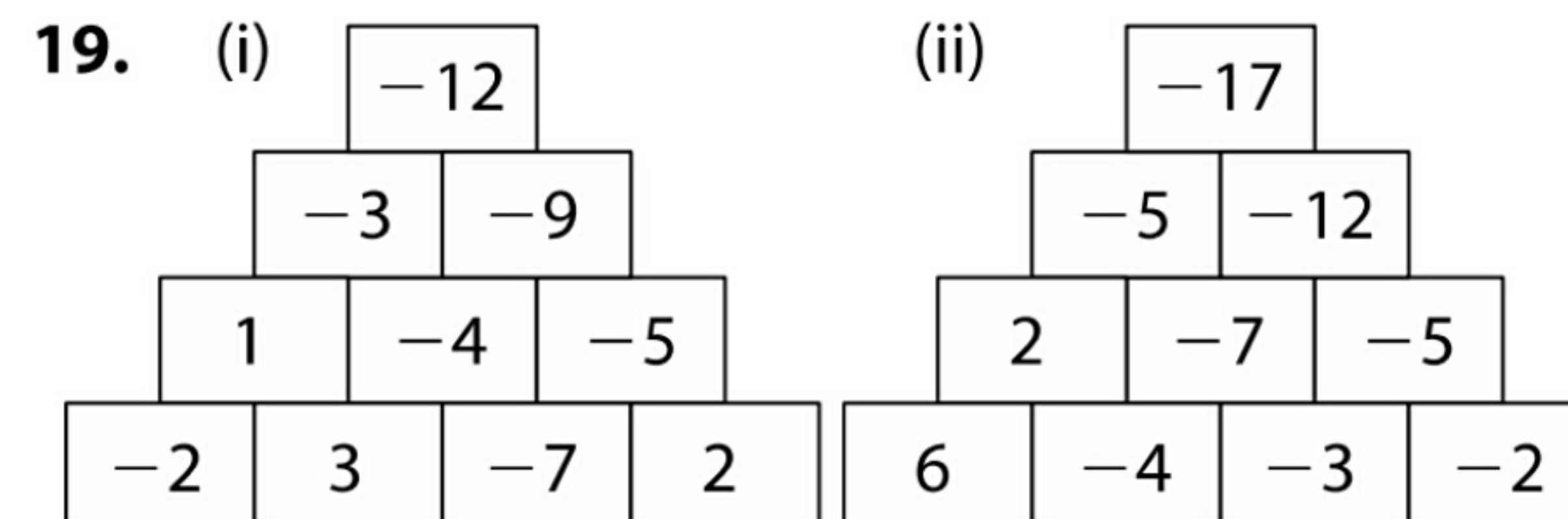|		
−6	−5	−4
		−10

= −15

21. At 7 p.m. the temperature in Berlin was 2°C. By midnight it had dropped by 5°C. By 4 a.m. it had dropped a further 5°C. What was the temperature at 4 a.m.?

22. John had €180 in his bank account. He lodged a further €135 to his account and then withdrew €115. How much was then in his account?

1. (i) −2 (ii) −4 (iii) −3 (iv) −3
(v) 3 (vi) 5 (vii) −4 (viii) −6

2. (i) −2 + 4 (ii) 2 − 4
(iii) −6 + 5 (iv) 4 − 5

3. (i) 10 (ii) 2 (iii) 7 (iv) −2
(v) −7 (vi) −6 (vii) −5 (viii) −4

4. (i) −3 (ii) −6 (iii) −6 (iv) −7
(v) −11 (vi) 10 (vii) −15 (viii) −50

5. 8 **6.** 8 **7.** 9 **8.** 8

9. 7 **10.** 5 **11.** −5 **12.** 3

13. 9 **14.** 4 **15.** 9 **16.** 2

17. (i) 3 (ii) 11 (iii) −9
(iv) 3 (v) −20 (vi) −9

19. (i)

	−12	
−3	−9	
1	−4	−5
−2	3	−7	2

(ii)

	−17	
−5	−12	
2	−7	−5
6	−4	−3	−2

20. (i)

−8	−1	−6
−3	−5	−7
−4	−9	−2

(ii)

2	1	−3
−5	0	5
3	−1	−2

(iii)

0	−14	−1
−6	−5	−4
−9	4	−10

21. −8°C **22.** €200

Answers