3.a)

| Number of <br> Yellow Tiles | Number of <br> Red Tiles | Integer <br> Modelled |
| :---: | :---: | :---: |
| 0 | 6 | -6 |
| 1 | 5 | -4 |
| 2 | 4 | -2 |
| 3 | 3 | 0 |
| 4 | 2 | +2 |
| 5 | 1 | +4 |
| 6 | 0 | +6 |

4.a) I chose +3 . I need 3 yellow tiles to model it.
b) I add a zero pair each time. I can model +3 in many ways.
c)

| Number of <br> Yellow Tiles | Number of <br> Red Tiles | Integer <br> Modelled |
| :---: | :---: | :---: |
| 3 | 0 | +3 |
| 4 | 1 | +3 |
| 5 | 2 | +3 |
| 6 | 3 | +3 |

There are always 3 more yellow tiles than red tiles. As the number of yellow tiles increases, the number of red tiles increases by the same amount.
d) For a negative integer, such as -23 , there will always be 23 more red tiles than yellow tiles. For a positive integer, such as +41 , there will be 41 more yellow tiles than red tiles.
5.a) 8
b) 98
6.a) +9
b) -5
c) +11 d) -9
e) -7
7.a) $+100 ;-20$
b) $+6 ;-4$
c) $+12 ;-8$
2.2 Adding Integers with Tiles, page 58
1.a) $(+4)+(-2)=+2$
b) $(+2)+(-3)=-1$
c) $(-4)+(-2)=-6$
d) $(+6)+(-3)=+3$
e) $(+1)+(-4)=-3$
f) $(+3)+(+2)=+5$
2.a) +1
b) -1
c) 0
3.a) 0
b) 0
c) 0

The number of red tiles equals the number of yellow tiles each time.
4.a) +5
b) +1
c) -5
5.a) $(+4)+(+3)=+7$
b) $(-7)+(+5)=-2$
c) $(-4)+(-5)=-9$
d) $(+8)+(-1)=+7$
e) $(-10)+(-6)=-16$
f) $(+4)+(-13)=-9$
6.a) $(-3)+(+4)=+1$
b) $(+5)+(-3)=+2$
c) $(+15)+(-7)=+8$
d) $(-3)+(+8)=+5$
e) $(+12)+(-5)=+7$
8.a) $(+3)$
b) $(-1)$
c) $(-2)$
d) $(+2)$
e) $(-1)$
f) $(+6)$
9.a) -4
b) No, the sum remains the same.
c) Each integer has been replaced by its opposite. The sum is also replaced by its opposite.
10.a) +6
b) +4
c) -5 $\qquad$
11. a)

| +3 | -4 | +1 |
| :---: | :---: | :---: |
| -2 | 0 | +2 |
| -1 | +4 | -3 |

b)

| d) +2 |  |  |
| :---: | :---: | :---: |
| -1 | -6 | +1 |
| 0 | -2 | -4 |
| -5 | +2 | -3 |

12.a) $-8,-12,-16,-20 \ldots$

Add -4 each time to get the next term.
b) $0,+3,+6,+9 \ldots$

Add +3 each time to get the next term.

### 2.3 Adding Integers on a Number Line,

 page 621.a) +4
b) +2
c) -2
d) -4
e) -7
f) +1
g) -1
h) +7
2.a) +6
b) +2
c) -6
d) -6
e) -13
f) -5
g) -3
h) +12
3. a), b) The answers are the same.
c) The order in which you add integers does not matter.
4.a) -2
b) -3
c) +4
5.a) +5 ; The temperature rose $5^{\circ} \mathrm{C}$.
b) +4 ; Adrian gained $\$ 4$.
c) +1 ; The stock was up $\$ 1$.
6.a) i) -2
ii) +5
iii) -6
iv) +8
b) i) $(+2)+(-2)=0$
ii) $(-5)+(+5)=0$
iii) $(+6)+(-6)=0$
iv) $(-8)+(+8)=0$
c) The sum of two opposite integers is 0 .
7. a), b) i) $(-5)+(-10)=-15$ You take 15 steps backward.
ii) $(-5)+(+8)=+3$;

You deposit $\$ 3$.
iii) $(-8)+(+6)=-2$;

The diver descends 2 m .

