18 + 12 = **30**
29 + 12 = 41
5 + 12 = **17**
12 + 12 = 24
44 + 12 = 5**6**
All the digits from 1 to 9 are used.

7 The method is the same as the one stated in question 6.
8 × 4 + 5 = **37**
1**6** × 4 + 5 = **69**
5 × 4 + 5 = **25**
23 × 4 + 5 = 97
1**4** × 4 + 5 = 6**1**
All the digits from 1 to 9 are used.

8 The method is the same as the one stated in question 6.
8 ÷ 2 – 1 = **3**
12 ÷ 2 – 1 = **5**
30 ÷ 2 – 1 = 1**4**
4**6** ÷ 2 – 1 = 22
96 ÷ 2 – 1 = **47**
All the digits from 1 to 9 are used.

9 The method is the same as the one stated in question 6.
1**6** × 2 + 3 = **35**
1**4** × 2 + 3 = 31
15 × 2 + 3 = **33**
27 × 2 + 3 = 57
1**8** × 2 + 3 = **39**
All the digits from 1 to 9 are used.

10 There are more than one set of answers to this question. The key is to put equal number of balls in each corner.
Ans 1: 32 – 4 = 28 28 ÷ 4 = 7
7 balls in each of the four corners, each of the remaining boxes contains **1** ball.
Ans 2: 32 – 8 = 24 24 ÷ 4 = 6
6 balls in each of the four corners, each of the remaining boxes contains **2** balls.
Ans 3: 32 – 12 = 20 20 ÷ 4 = 5
5 balls in each of the four corners, each of the remaining boxes contains **3** balls.
Ans 4: Place **4** balls in each box.

11 Each term is added by a consecutive even number.
45 + 14 = **59**

12 To find the second term, add the first term and third term together. Divide the result by 3.
1 + 11 = 12 12 ÷ 3 = 4
The same rule applies for the rest of the terms.
4 + 29 = 33 33 ÷ 3 = 11
To find the 8th term, multiply 521 by 3 and subtract 199 from the result.
521 × 3 = 1563 1563 – 199 = **1364**

13 The rule is to find the square of each term. To square means to multiply the number by itself.
1 × 1 = 1 4 × 4 = 16
2 × 2 = 4 5 × 5 = 25
3 × 3 = 9 6 × 6 = **36**

14 The difference between the two terms increases by 1. To get the next term, add the difference to the previous term.
16 + (6) = **22** 22 + (7) = **29**

15 The difference between two terms increases by 2. To get the next term, add the difference to the previous term.
32 + (12) = **44** 44 + (14) = **58**

16 Add 1 to the odd terms and 5 to the even terms.
3 + 1 = 4 4 + 5 = 9
9 + 1 = 10 10 + 5 = 15
15 + 1 = **16** 16 + 5 = **21**
21 + 1 = **22**

17 Add 2 to the odd terms and multiply the even terms by 2.
1 (+ 2) = 3 16 (+ 2) = 18
3 (× 2) = 6 18 (× 2) = **36**
6 (+ 2) = 8 36 (+ 2) = **38**
8 (× 2) = 16

18 All sequences are Fibonacci numbers except for (d).

19 **(a)** In the first number pattern,
7 + 5 = 12 12 ÷ 4 = 3
The same rule applies.
9 + 7 = 16 16 ÷ 4 = **4**
(b) In each number pattern, find the difference of the numbers at the top and bottom. Multiply the difference by the number on the left-hand side to get the correct answer.
10 – 7 = 3 6 × 3 = **18**

(c) In each number pattern, find the sum of the numbers at the top and bottom. Divide the number on the right-hand side by the sum to get the correct answer.
$10 + 2 = 12$ $36 \div 12 = \mathbf{3}$

20 This is an example of Fibonacci numbers.

Jan	$10
Feb	$20
Mar	$30
Apr	$50
May	$80
Jun	$130
Jul	$210
Aug	$340
Sep	$550
Oct	$890

(a) She saved $210 in **July**.
(b) She saved **$890** in October.

21 Observe the pattern in each row.
The second row is the multiplication table of 2, the third row is the multiplication table of 3 and the fourth row is the multiplication table of 4.
Hence the fifth and sixth rows are multiplication tables of 5 and 6 respectively.

5 **(10)** **(15)** **(20)** **(25)**
6 12 **(18)** **(24)** **(30)** **(36)** **(42)**

CHAPTER 2

1 There are 3 pairs of 18.
$3 \times 18 = \mathbf{54}$

2 There are 3 pairs of 10.
$3 \times 10 = 30$
$30 + 5 = \mathbf{35}$

3 There are 4 pairs of 13.
$4 \times 13 = \mathbf{52}$

4 There are 3 pairs of 16.
$3 \times 16 = 48$
$48 + 8 = \mathbf{56}$

5 There are 4 pairs of 46.
$4 \times 46 = \mathbf{184}$

6 There are 3 pairs of 18.
$3 \times 18 = 54$
Since 9 is not paired up,
$54 + 9 = \mathbf{63}$

7 There are 3 pairs of 25.
$3 \times 25 = \mathbf{75}$

8 There are 3 pairs of 38.
$3 \times 38 = \mathbf{114}$

9 There are 25 pairs of 51.
$25 \times 51 = \mathbf{1275}$

10 There are 25 even numbers from 2 to 50 and hence 12 pairs of 52.
$12 \times 52 = 624$
To find the remaining number,
$(50 + 2) \div 2 = 26$
$624 + 26 = \mathbf{650}$

11 There are 25 odd numbers from 1 to 49 and hence 12 pairs of 50.
$12 \times 50 = 600$
To find the remaining number,
$(1 + 49) \div 2 = 25$
$600 + 25 = \mathbf{625}$

12 There are 50 pairs of 101.
$50 \times 101 = \mathbf{5050}$

13 We have to find the value of $15 + 30 + 45 + 60 + 75 + 90 + 105 + 120$.
$4 \times 135 = 540$
Cindy saved **$540** in all.

14 We have to find the value of $10 + 12 + 14 + 16 + 18 + 20 + 22 + 24 + 26 + 28 + 30 + 32$.
$6 \times 42 = 252$
There are **252** seats in the cinema altogether.