Exercise-1

1. (a) (ii)

    The figure is turning 45° clockwise each time.

    (b) (i)
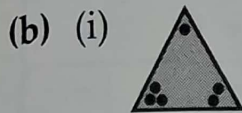
    The figure is turning 60° clockwise each time.

    (c) (ii)
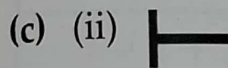
    The figure is turning 90° clockwise each time.

2. (a) Observing the given pattern, we see that each term is a combination of a letter and a number.

    The letters are in sequence. However, each number in the pattern is 3 more than the preceding number.

    So, $1 + 3 = 4$, $4 + 3 = 7$, $7 + 3 = 10$

    So, the number part of the next three terms will be

    $10 + 3 = 13$, $13 + 3 = 16$ and $16 + 3 = 19$.

    Hence, the pattern becomes

    A1, B4, C7, D10, E13, F16, G19.

    (b) Observing the given pattern, we see that each term in the pattern is 10 times the preceding term.

    So, $10 \times 10 = 100$, $100 \times 10 = 1000$, $1000 \times 10 = 10000$

    So, the next three terms will be

    $10000 \times 10 = 100000$, $100000 \times 10 = 1000000$,

    $1000000 \times 10 = 10000000$

    Hence, the pattern becomes

    10, 100, 1000, 10000, 100000, 1000000, 10000000.

    (c) Observing the given pattern, we see that each term is obtained by dividing the preceding term by 3.

    So, $729 \div 3 = 243$, $243 \div 3 = 81$

    So, the next three terms will be

    $81 \div 3 = 27$, $27 \div 3 = 9$, $9 \div 3 = 3$

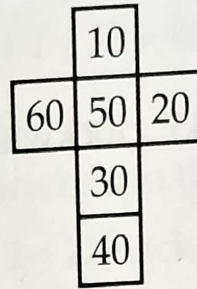   Hence, the pattern becomes

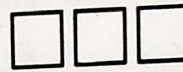   729 , 243, 81, 27, 9, 3.

3. (a) (b)

Puzzle (Page 201)

	10	
60	50	20
	30	
	40	

Exercise-2

1. (a) (i)   (b) (iii)

2. (a) b b A

   (b) – – ×

Practice Time (Page 202)

Magic sum = 22 + 12 + 18 + 87 = 139

22	12	18	87
88	17	9	25
10	24	89	16
19	86	23	11

Exercise-3

1. (a) (i) The fifth square number is 25.

   (b) (iii)

$$1 = 1$$
$$2 \times 2 = 4$$
$$3 \times 3 \times 3 = 27$$
$$4 \times 4 \times 4 \times 4 = 256$$
$$5 \times 5 \times 5 \times 5 \times 5 = \mathbf{3125}$$
$$6 \times 6 \times 6 \times 6 \times 6 \times 6 = 46656$$

So, the missing number is 3125.

2. (a)

47	52	51
54	50	46
49	48	53

(b)

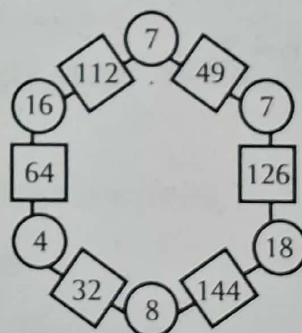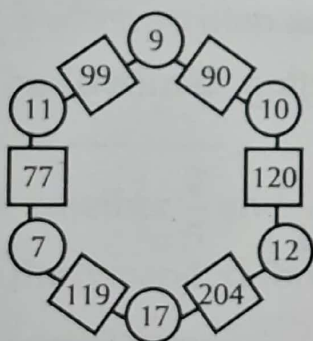| 21	10	16	7
8	15	13	18
11	20	6	17
14	9	19	12

3.

1	1 (first triangular number)
1 + 2	3 (second triangular number)
1 + 2 + 3	6 (third triangular number)
1 + 2 + 3 + 4	10 (fourth triangular number)
1 + 2 + 3 + 4 + 5	15 (fifth triangular number)

4. (a) $1 + 2 + 3 + 4 + 5 = \dfrac{5 \times 6}{2}$

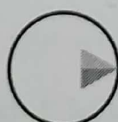**(b)** $1 + 2 + 3 + 4 + 5 + 6 = \dfrac{6 \times 7}{2}$

Mental Maths Corner

Review Exercise

1. (a) (i)   **(b)** (iii)   **(c)** (i)

(d) (iv) 12 is not a triangular number.

2.
$1 \times 1 \times 1 = 1 = 1$

$2 \times 2 \times 2 = 8 = 3 + 5$

$3 \times 3 \times 3 = 27 = 7 + 9 + 11$

$4 \times 4 \times 4 = 64 = 13 + 15 + 17 + 19$

$5 \times 5 \times 5 = 125 = 21 + 23 + 25 + 27 + 29$

$6 \times 6 \times 6 = 216 = 31 + 33 + 35 + 37 + 39 + 41$

3. Two square numbers whose sum is also a square number are 9 and 16.

$9 + 16 = 25$