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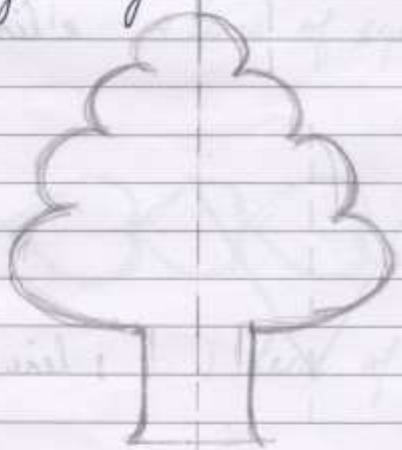
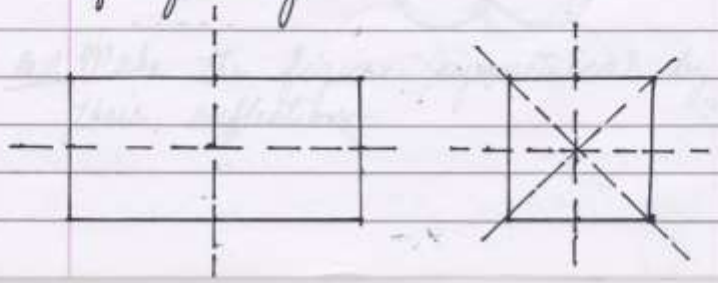
Unit III Chapter 7

Symmetry

If a figure can be folded in such a way that one part of it exactly coincides with the other part, then the figure is symmetrical. The line along which it is folded is line of symmetry.



A figure can have more than one line of symmetry.



Note- S.A. -I (Syllabus of unit I,II & III)

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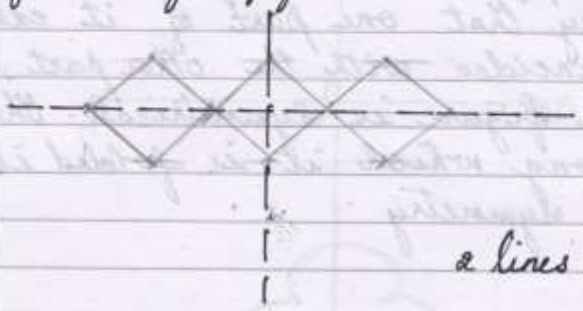
Ex. 7.1.

Q1 Draw the lines of symmetry of the following figures.

a)

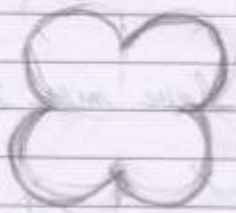


2 lines of symmetry

b).

1 line of symmetry

c)



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Note- S.A. -I (Syllabus of unit I,II & III)

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Q.11 How many lines of symmetry do the following figures have ?

a)

4 lines of symmetry

b)

1 line of Symmetry

c)

Q.12 Make the figure symmetrical by drawing their reflection.

Note- S.A. -1 (Syllabus of unit I,II & III)

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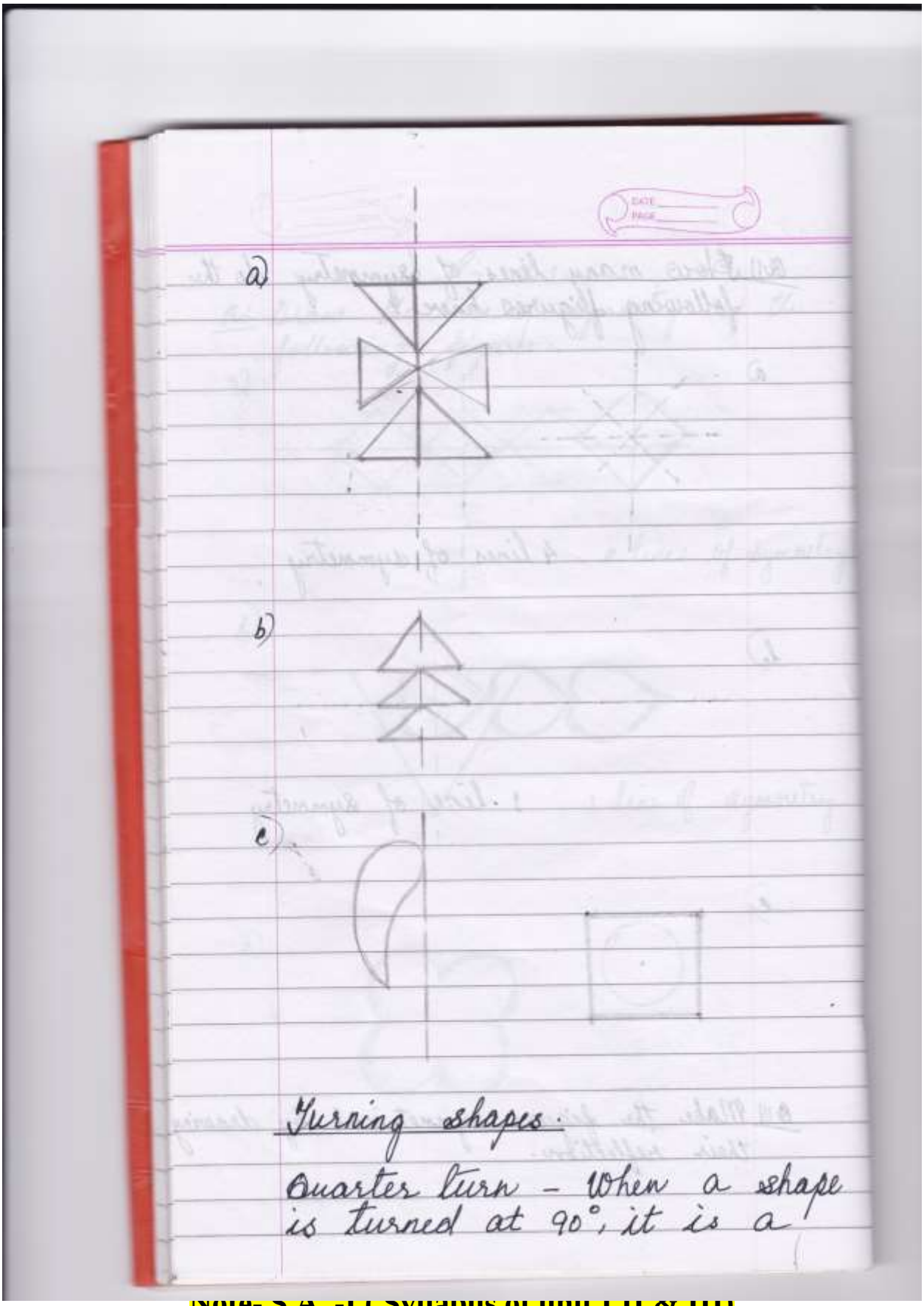

Note- S.A. -1 (Syllabus of unit I,II & III)

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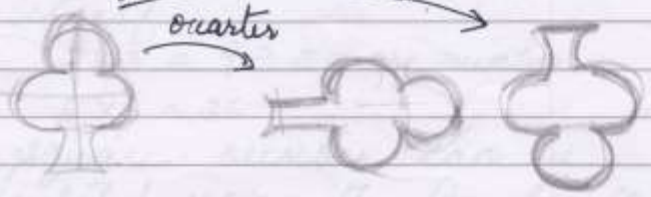
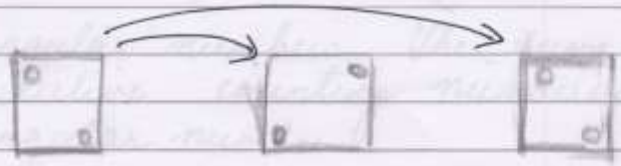
quarter turn
eg N → Z

Half turn - When a shape is turned at 180° it is a half turn.
eg N → N

Ex 7.2

Q1 Draw the design after quarter turn and half turn.

a) 

b) 

c) 

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Q11 Write two 3-digit numbers that look the same after half turn.

Sol 808 888

Q111 Write all the English alphabet which look the same after half turn.

Sol H I N O S X Z

Note- S.A. -I (Syllabus of unit I,II & III)

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Chapter 8

Patterns

A pattern is a definite sequence of shapes, numbers or letters repeated ligically.

eg 1, 2, 4, 8, 16 - - - - -

1, 4, 7, 10, 13 - - - -

Square numbers. Square number is a number we get when a particular number is multiplied by itself

eg $3 \times 3 = 9 \rightarrow$ square number

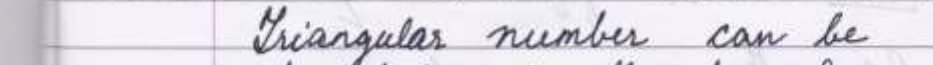
$6 \times 6 = 36$

Any square number can be calculated using the formula. $(n \times n)$

Triangular number. The sums of consecutive counting numbers are triangular number

eg 1 , 1+2 , 1+2+3 , 1+2+3+4

→ 1 3 6 10



Triangular number can be calculated using the formula

$\frac{n}{2}[2+(n-1)]$

Note- S.A. -I (Syllabus of unit I,II & III)

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Ex 8.1

Q/I Write the next two terms in the following sequence.

a: 1, 3, 9, 27, 81 243, 729

b: 1, 5, 14 30 55 91

c 0, 3, 8, 15, 24, —, —

Q/II Write the twenty sixth triangular number

Sol: 26^{th} triangular number $= \frac{n}{2}\times[2+(n-1)]$

$= \frac{26}{2} \times [2+(26-1)]$

$= 13 \times [2+25]$

$= 13 \times 27$

$= 351$

Q/III Write the fifteenth square number

Sol: 15^{th} square number $= n \times n$

$= 15 \times 15$

$= 225$

Note- S.A. -I (Syllabus of unit I,II & III)

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Q.IV Find the sum of first 15 odd number

Sol. Sum of first 15 odd numbers $= n \times n$

$= 15 \times 15$

$= 225$.

Q.V Find the sum of first 15 even numbers

Sol. Sum of first 15 even numbers

$= n \times (n+1)$

$= 15 \times (15+1)$

$= 15 \times 16$

$= 240$

Note- S.A. -1 (Syllabus of unit I,II & III)