CREST

Olympiads

REASONING WORKBOOK

10

For the preparation of National & International Olympiads

- Chapter-wise practice exercises
- Previous year paper

CREST Reasoning Olympiad (CRO)

Reasoning Olympiad

Exams Preparation Book

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Grade 10

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CREST Reasoning Olympiad Workbook for Grade 10

Third Edition

Disclaimer: The information in the Workbook is to give you the path to success but it does not guarantee 100% success as the strategy is completely dependent on its execution. And it is based on previous year papers of CRO exam.

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Preface

We are pleased to launch a thoroughly revised edition of this workbook. We welcome feedback from students, teachers, educators and parents. For improvements in the next edition, please send your suggestions at info@crestolympiads.com. Our team will make an effort to work on those suggestions. The status of the improvements can be checked at https://www.crestolympiads.com/corrections-class10-652

CREST Olympiads is one of the largest Olympiad Exams with students from more than 25 countries. The objective of these exams is to build a competitive spirit while evaluating students on conceptual understanding of the concepts.

We strive to provide a superior learning experience, and this workbook is designed to complement the school studies and prepare the students for various competitive exams including the CREST Olympiads. This workbook provides a crisp summary of the topics followed by the practice questions. These questions encourage the students to think analytically, to be creative and to come up with solutions of their own. There are a couple of previous year papers given at the end of this workbook for the students to attempt after completing the syllabus. This paper should be attempted in 1 hour to get an assessment of the student's preparation for the final exam.

Publishers

Figure Formation, Grouping of Identical Figures and Figure Matrix

Under the topic of grouping of identical figures, a group of figures are provided to the students which they are supposed to group together in categories based on some common logic.

Under the topic of figure matrix, a group of figures is present in a rectangular matrix. There is some relation between the elements in a row or in a column which the student needs to decode and apply the logic to find the missing part.

Under the topic of construction of squares or figures, the students will be provided with some simpler shapes joining which we can form a composite shape present in the options.

Example 1: Select a suitable figure from the four alternatives that would complete the figure matrix:

a.

b.

c.

d.
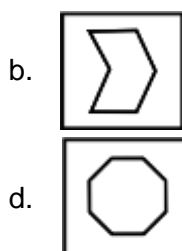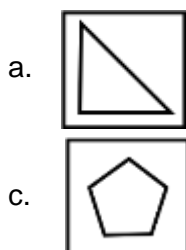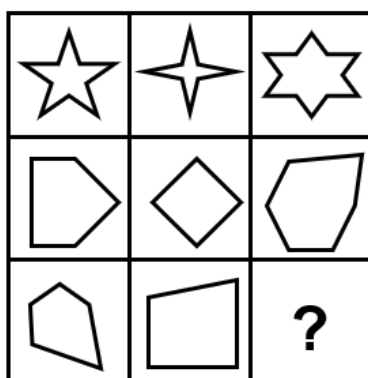
Solution 1: b

In row 1, column 1: The number of points in the star is 5.
In row 1, column 2: The number of points in the star is 4.
In row 1, column 3: The number of points in the star is 6.
Hence, the logic is column 2 = column 1 - 1 and column 3 = column 1 + 1
In row 2 and row 3, the number of sides in the figure should be considered.
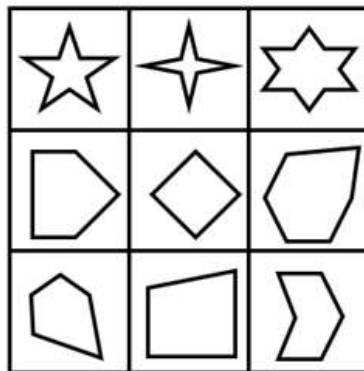The logic remains the same, therefore in row 3:
Column 1: Number of sides = 5
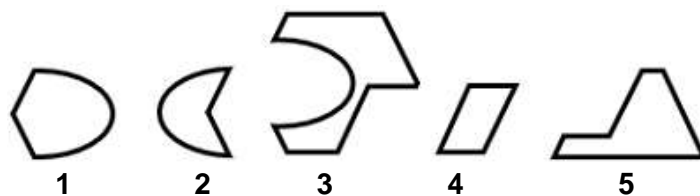Column 2: Number of sides = 5 - 1 = 4

Column 3: Number of sides = 5 + 1 = 6
So, we need to search for an option which has 6 sides in it.
The complete matrix will look as follows:

Hence, option b is the correct answer.

Example 2: Select three figures out of the following five figures which when fitted into each other would form a hexagon:

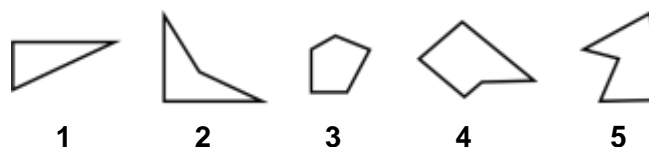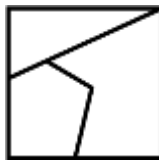|	
a. 2, 3, 4	b. 1, 4, 5
c. 4, 3, 1	d. 2, 3, 5

Solution 2: c

Figures 1, 3 and 4 will form the hexagon as shown in the following image:

Hence, option c is the correct answer.

Example 3: Select three figures out of the following five figures which when fitted into each other would form a square:

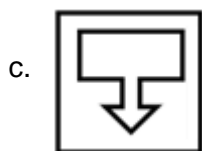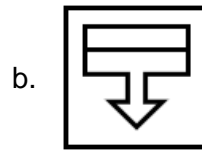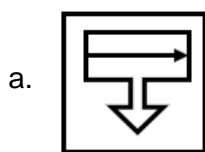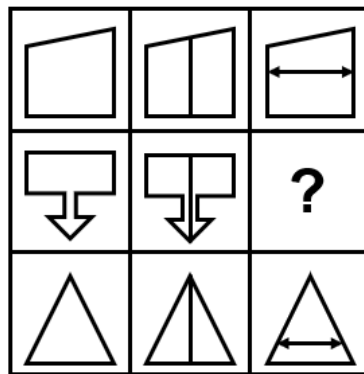|	
a. 1, 4, 5	b. 2, 4, 5
c. 2, 4, 5	d. 1, 3, 5

Solution: d

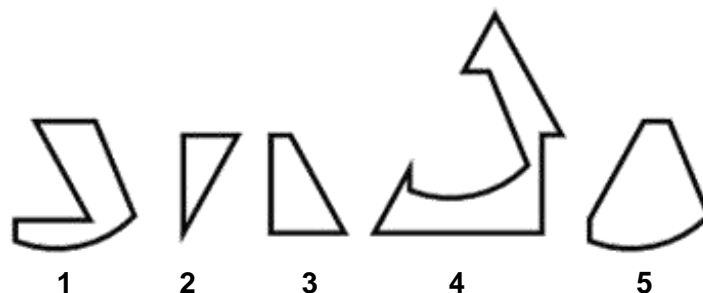Figures 1, 3 and 5 will form the square as shown in the following image:

Hence, option d is the correct answer.

Practice Questions

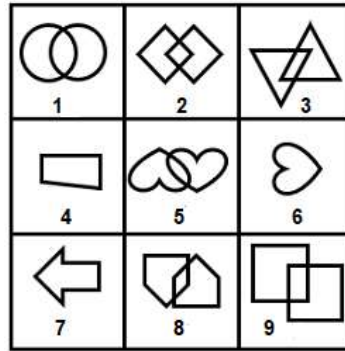1. Select a suitable figure from the four alternatives that would complete the figure matrix:

a.

b.

c.

d.
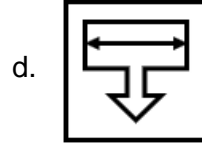
2. Select three figures out of the following five figures which when fitted into each other would form a triangle:

a. 2, 3, 4

b. 3, 4, 5

c. 4, 3, 1

d. 2, 3, 5

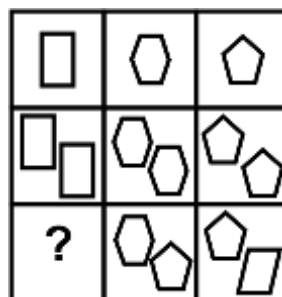**3.** Group the given figures into three classes using each figure only once:

a. 2, 6, 8; 1, 7, 9; 3 ,4 ,5

b. 2, 6, 7; 1, 8, 3; 4, 5, 9

c. 1, 5, 8; 2, 3, 9; 4, 6, 7

d. 3, 5, 8; 1, 2, 9; 4, 6, 7

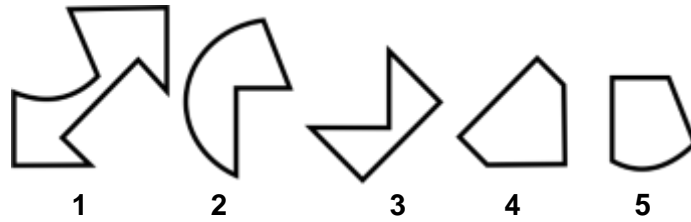**4.** Find out which of the option figures can be formed from the pieces given in fig. (X):

X

a.

b.

c.

d.

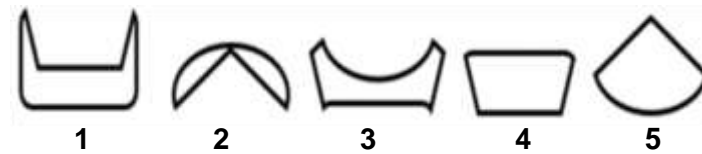**5.** Select a suitable figure from the four alternatives that would complete the figure matrix:

a.

b.

c.

d.

6. Select three figures out of the following five figures which when fitted into each other would form a square.

1   2   3   4   5

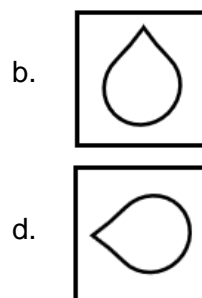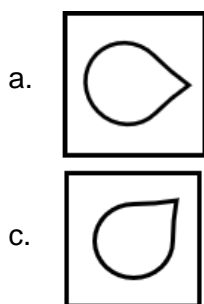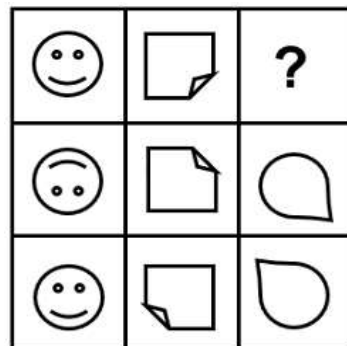 a. 2, 3, 4   b. 3, 4, 5

  c. 1, 4, 5   d. 2, 3, 5

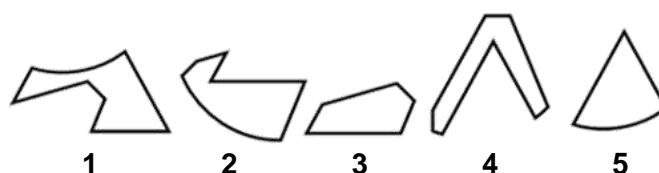**7.** Select three figures out of the following five figures which when fitted into each other would form a pentagon.

1   2   3   4   5

  a. 2, 3, 4   b. 3, 4, 5

  c. 4, 5, 1   d. 2, 3, 5

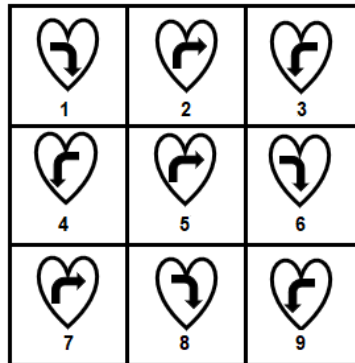**8.** Select a suitable figure from the four alternatives that would complete the figure matrix.

  a.   b.

  c.   d.

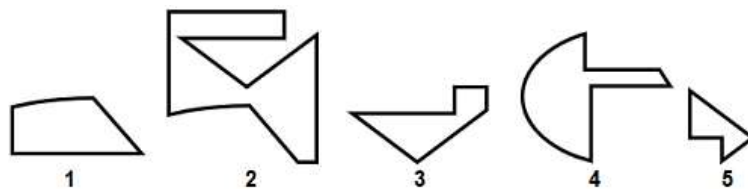**9.** Select three figures out of the following five figures which when fitted into each other would form a triangle.

1   2   3   4   5

a. 2, 3, 4	b. 3, 4, 5
c. 4, 5, 1	d. 1, 3, 5

10. Group the given figures into three classes using each figure only once:
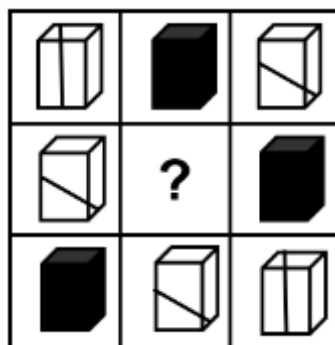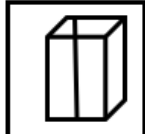

a. 2, 6, 8; 1, 7, 9; 3 ,4 ,5	b. 2, 6, 7; 1, 8, 3; 4, 5, 9
c. 1, 6, 8; 2, 5, 7; 3, 4, 9	d. 3, 5, 8; 1, 2, 9; 4, 6, 7

11. Select three figures out of the following five figures which when fitted into each other would form a square:

a. 2, 3, 4	b. 3, 4, 5
c. 4, 5, 1	d. 1, 3, 2

12. Select a suitable figure from the four alternatives that would complete the figure matrix.
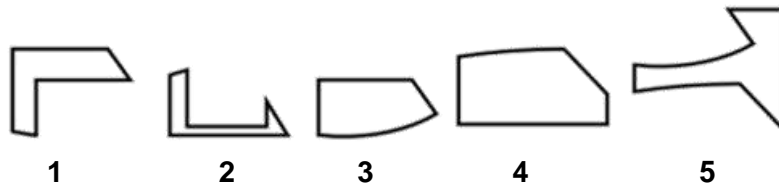

a.

b.

c.

d.

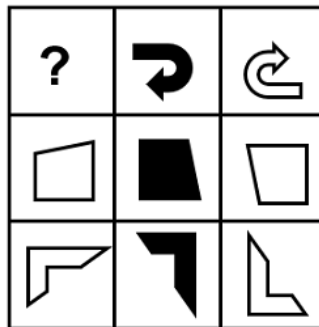**13.** Find out which of the option figures can be formed from the pieces given in fig. (X):

X

a.

b.

c.

d.

14. Select three figures out of the following five figures which when fitted into each other would form a square.
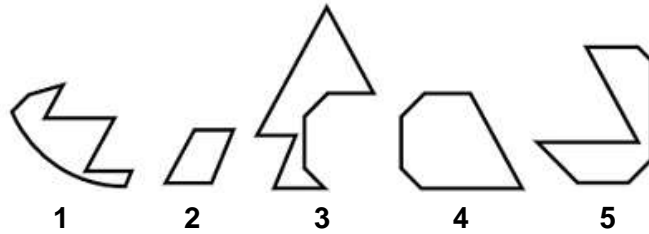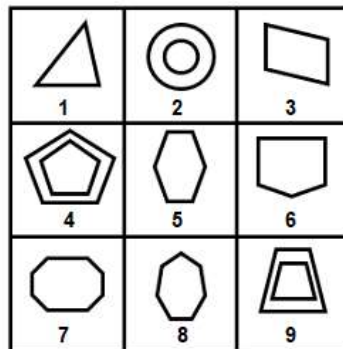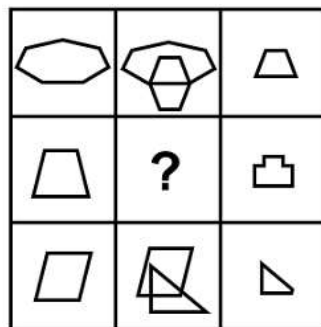

1   **2**   **3**   **4**   **5**

a. 2, 3, 4   b. 3, 4, 5
c. 4, 5, 1   d. 1, 3, 2

15. Select a suitable figure from the four alternatives that would complete the figure matrix:
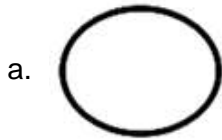

a.

b.

c.

d.

16. Select three figures out of the following five figures which when fitted into each other would form a triangle:

1	2	3	4	5

a. 2, 3, 4

b. 3, 4, 5

c. 4, 5, 1

d. 1, 3, 2

17. Group the given figures into three classes using each figure only once:

a. 2, 6, 8; 1, 7, 9; 3 ,4 ,5

b. 2, 6, 7; 1, 8, 3; 4, 5, 9

c. 1, 6, 8; 3, 5, 7; 4, 2, 9

d. 3, 5, 8; 1, 2, 9; 4, 6, 7

18. Select a suitable figure from the four alternatives that would complete the figure matrix:
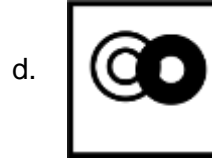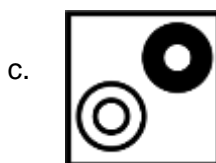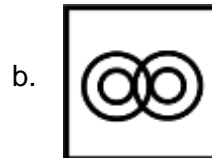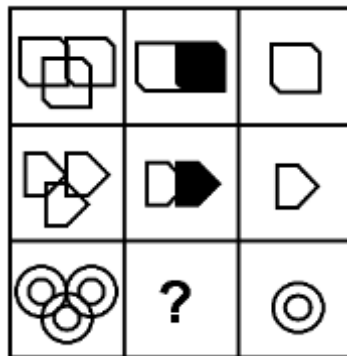

a.

b.

c.

d.

19. Find out which of the option figures can be formed from the pieces given in fig. (X):

X

a.

b.

c.

d.

20. Select a suitable figure from the four alternatives that would complete the figure matrix:

a.

b.

c.

d.