

REASONING WORKBOOK

9

For the preparation of National
& International Olympiads



- Chapter-wise practice exercises
- Previous year paper

CREST Reasoning Olympiad (CRO)

Reasoning Olympiad

Exams Preparation Book

CRO | UCTO | iRAO

Grade 9



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CREST Reasoning Olympiad Workbook for Grade 9

Third Edition

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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-class9-516>

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

Chapter 1

Figure Formation, Construction of Squares, Grouping of Identical Figures and Figure Matrix

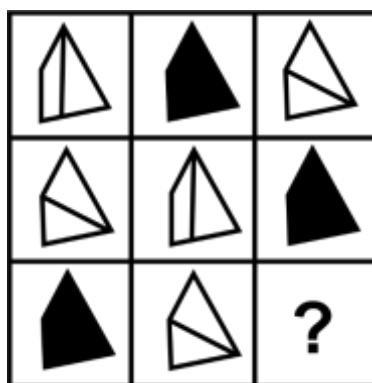
Under this category of logical reasoning, we deal with questions related to figure formation, construction of squares, grouping of identical figures and figure matrix.

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 student need 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 some composite shape present in the options.

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



Solution 1: c

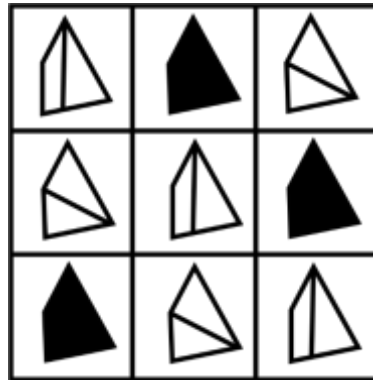
The elements in a column or row have three types of quadrilaterals –

- i. One is coloured
- ii. One has a vertical line
- iii. One has a slanting line

If we carefully observe, we will find that all the rows and all the columns have three different types of figures.

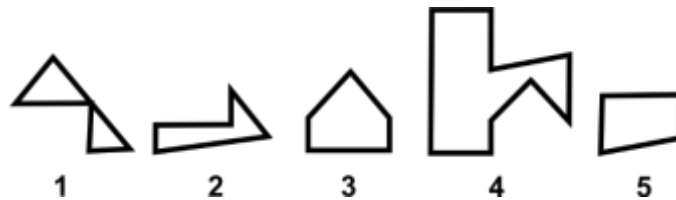
Hence, the missing figure needs to be added in place of the question mark.

The complete matrix will look as follows:



Hence, option c is the correct answer.

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

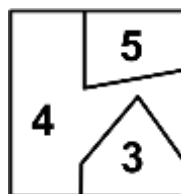


- a. 2, 3, 4
- c. 4, 3, 1

- b. 3, 4, 5
- d. 1, 3, 4

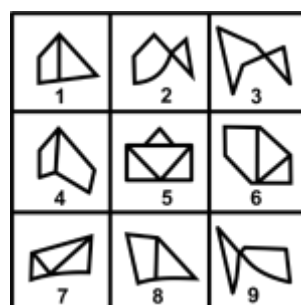
Solution 2: b

Figures 3, 4 and 5 will form the square as shown in the following image:



Practice Questions

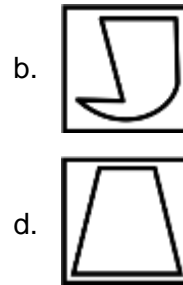
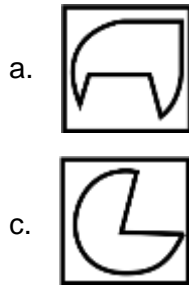
- Group the given figures into three classes using each figure only once:



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

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

2. In each of the following questions, find out which of the figures (a), (b), (c) and (d) can be formed from the pieces given in fig. (X):



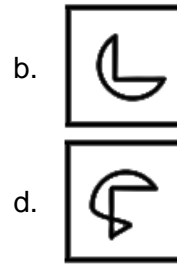
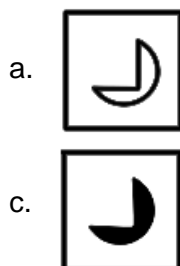
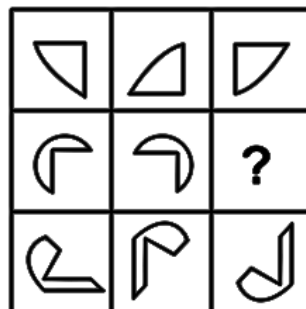
3. Select three figures out of the following five figures which when fitted into each other would form a triangle:



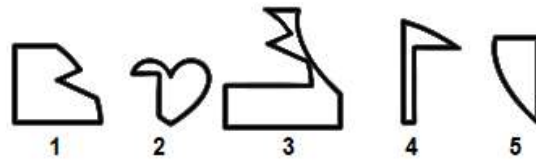
- a. 2, 3, 5
c. 5, 3, 1

- b. 1, 3, 4
d. 1, 2, 4

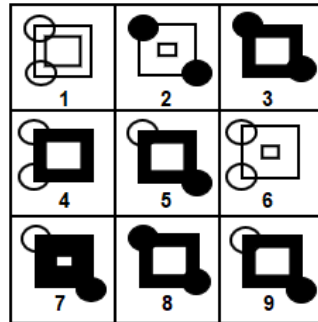
4. Select a suitable figure from the four alternatives that would complete the figure matrix:



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



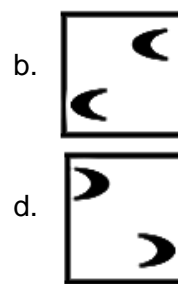
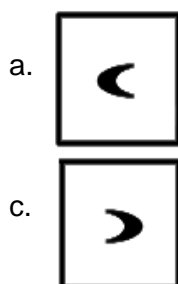
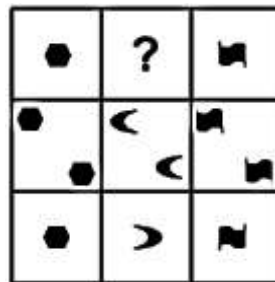
- a. 2, 3, 5
b. 1, 3, 4
c. 1, 3, 5
d. 1, 2, 4
6. Group the given figures into three classes using each figure only once:



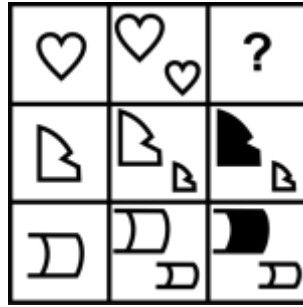
- a. 2, 6, 8; 1, 7, 9; 3, 4, 5
b. 2, 6, 7; 1, 8, 3; 4, 5, 9
c. 1, 4, 6; 2, 3, 8; 5, 9, 7
d. 3, 4, 8; 1, 5, 9; 2, 6, 7
7. Select three figures out of the following five figures which when fitted into each other would form a triangle:



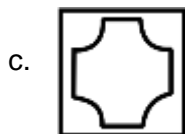
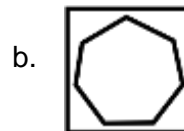
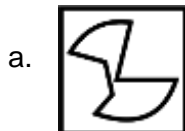
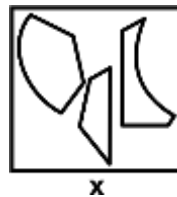
- a. 2, 3, 5
b. 1, 3, 4
c. 1, 3, 5
d. 1, 5, 4
8. Select a suitable figure from the four alternatives that would complete the figure matrix.



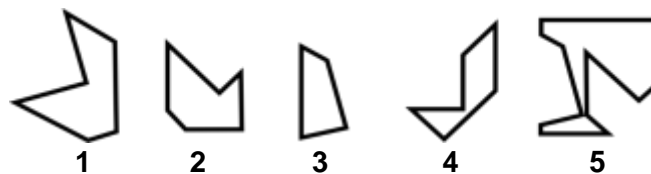
9. Select a suitable figure from the four alternatives that would complete the figure matrix.



10. In each of the following questions, find out which of the figures (a), (b), (c) and (d) can be formed from the pieces given in fig. (X):



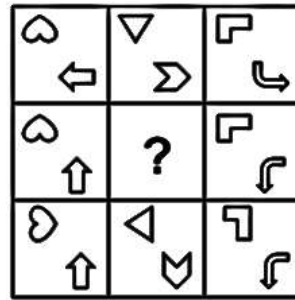
11. Select three figures out of the following five figures which when fitted into each other would form a square.



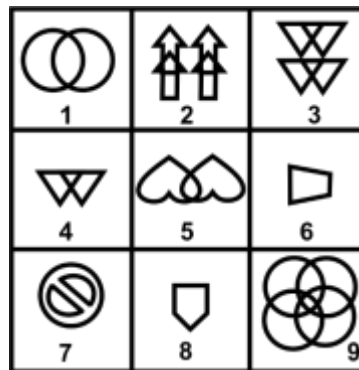
- a. 2, 3, 5
c. 1, 3, 5

- b. 1, 3, 4
d. 1, 5, 4

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



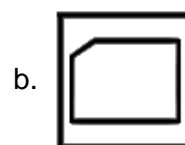
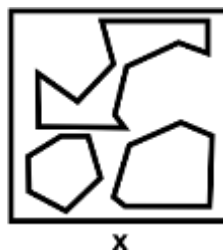
13. Group the given figures into three classes using each figure only once:



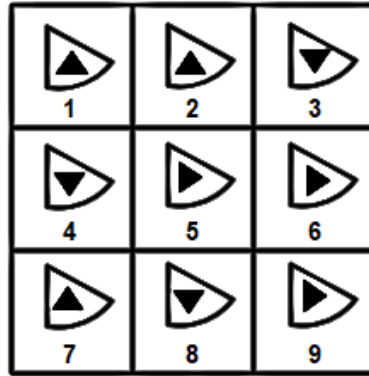
- a. 2, 6, 8; 1, 7, 9; 3, 4, 5
c. 1, 4, 8; 2, 3, 9; 5, 6, 7

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

14. In each of the following questions, find out which of the figures (a), (b), (c) and (d) can be formed from the pieces given in fig. (X):

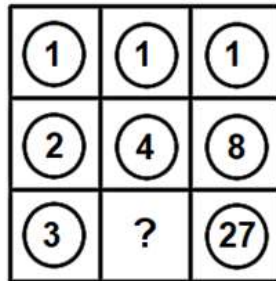


15. Group the given figures into three classes using each figure only once:



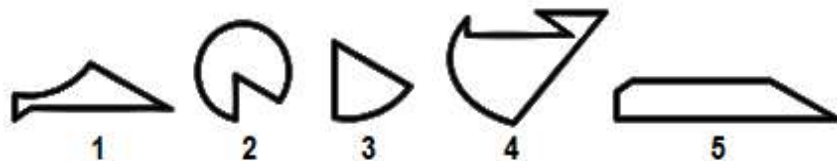
- a. 2, 6, 8; 1, 7, 9; 3, 4, 5
 b. 1, 2, 7; 3, 4, 8; 6, 5, 9
 c. 1, 4, 8; 2, 3, 9; 5, 6, 7
 d. 2, 3, 9; 1, 5, 4; 6, 7, 8

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



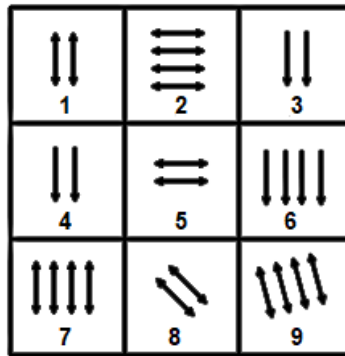
- a.
 b.
 c.
 d.

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



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

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



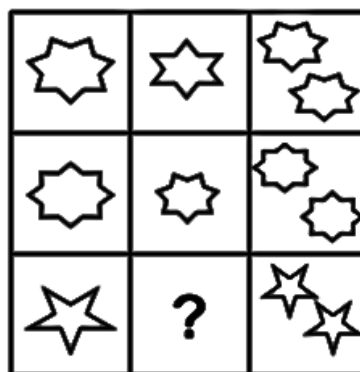
- a. 2, 6, 8; 1, 7, 9; 3, 4, 5
b. 2, 1, 7; 4, 8, 3; 6, 5, 9
c. 1, 5, 8; 4, 3, 6; 2, 7, 9
d. 3, 2, 9; 1, 5, 4; 8, 6, 7

19. In each of the following questions, find out which of the figures (a), (b), (c) and (d) can be formed from the pieces given in fig. (X):



- a.
b.
c.
d.

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



- a.
b.
c.
d.