CREST Olympiads

#CRESTInnovator

CREST Mathematics Olympiad (CMO)
Worksheet for
Class 7

Topic

Symmetry and Visualising Solid Shapes

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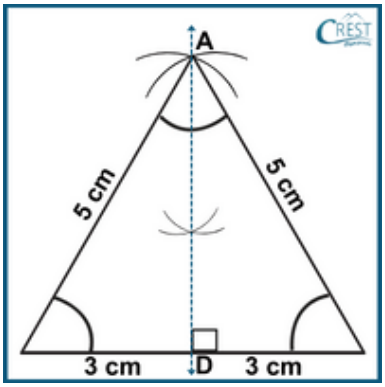
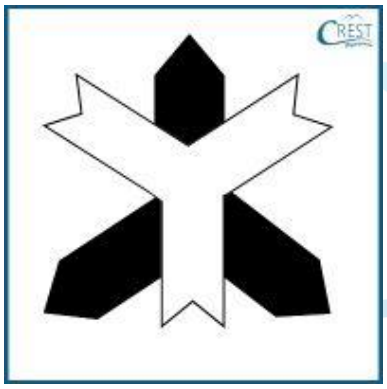
Worksheet on Symmetry and Visualising Solid Shapes

1. **What is the length of the line of symmetry AD?**



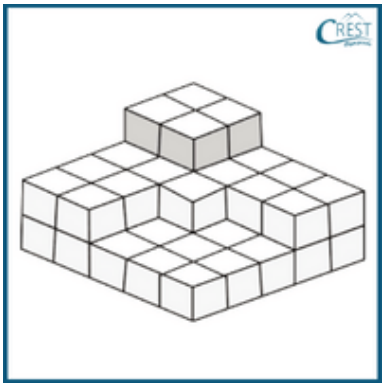
a. 3.6 cm
b. 4.0 cm
c. 4.4 cm
d. 4.5 cm

2. **How many lines of symmetry are there in the given figure?**



a. Two lines of symmetry
b. Three lines of symmetry
c. Four lines of symmetry
d. Infinite lines of symmetry

3. **How many cubes are present in the following structure?**



a. 26
b. 36
c. 46
d. 56

4. **Which of the following letter combinations best represents rotational symmetry in the word "MATHS"?**

a. A and S
b. M and T
c. H and S
d. S and T

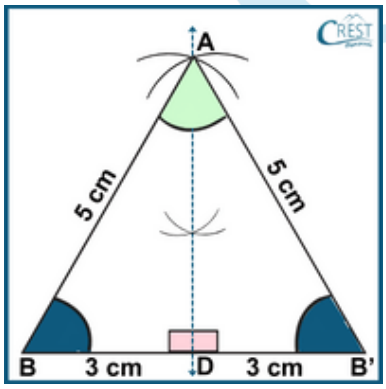
5. **What is the other name for a line of symmetry of a circle?**

a. An arc
b. A radius
c. A diameter
d. A sector

Answer Key

1. b - 4.0 cm

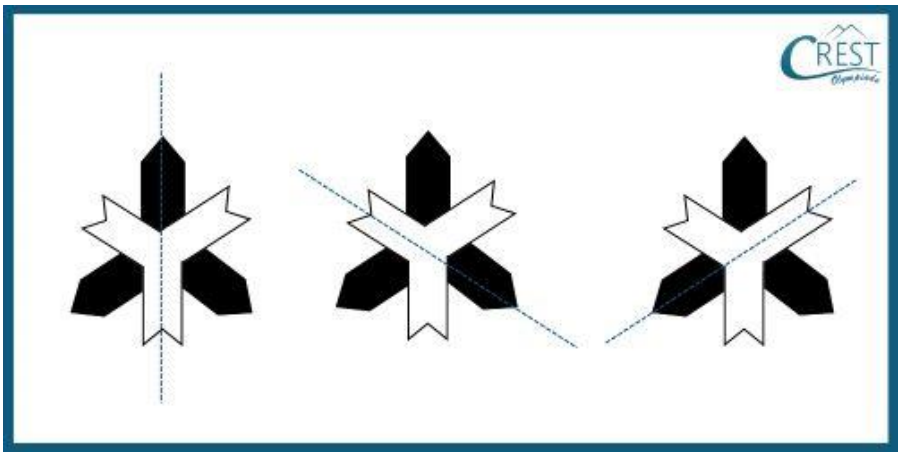
Explanation: Both △ABD and △AB'D are similar triangles which is shown in the diagram.



In ABD,
$AB^2 = AD^2 + BD^2$ [**Pythagoras' Theorem**]
$AD^2 = \sqrt{(AB^2 - BD^2)}$
$AD = \sqrt{(AB^2 - BD^2)}$
$AD = \sqrt{(5^2 - 3^2)}$
$AD = \sqrt{(25 - 9)}$
$AD = \sqrt{16}$
$AD = 4 \times 4$
$AD = 4$ cm

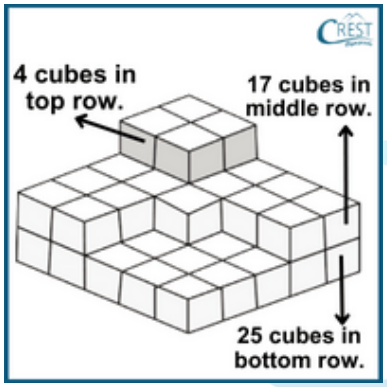
2. b - Three lines of symmetry

Explanation: There are three lines of symmetry, shown as:



3. c - 46

Explanation: In the structure, cubes are counted.



Number of cubes present in the given structure
= 4 + 17 + 25 = 46

4. c - H and S

Explanation: Rotational symmetry is a characteristic that allows an object or word to maintain its appearance when rotated by a specific angle.
In the case of the word “MATHS”, the letters ‘H’ and ‘S’ show rotational symmetry as they remain identical when the word is rotated by 180° which is equal to a half turn. In the word “MATHS”, the pairs of letters with rotational symmetry are ‘H’ and ‘S’.

5. c - A diameter

Explanation: A diameter divides the circle into 2 equal parts. So, it can be considered as a line of symmetry.

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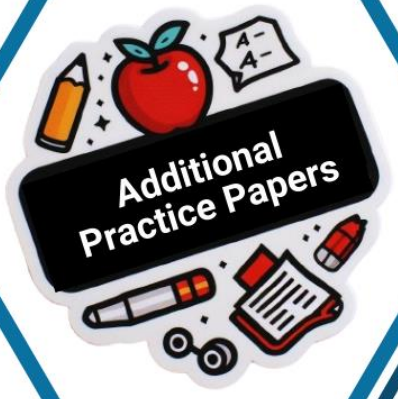

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