

LG Mathematical Olympiad

Geometrical Shapes and Patterns

Name: _____ Date: _____ Date Handed in: _____

Day/Time: _____ Teacher: _____ Marks: _____ /

Lesson Overview

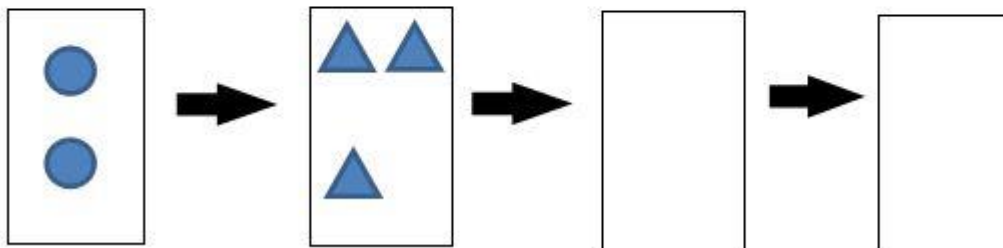
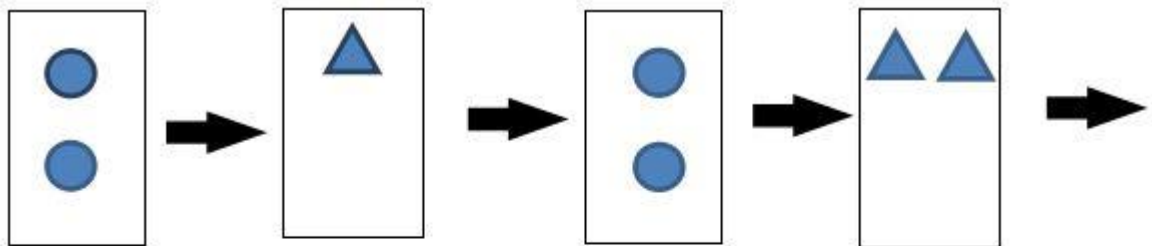
In competition mathematics, there is a popular category of questions which requires students to identify patterns formed by a series of geometrical shapes and to predict “missing” shapes.

In this lesson, students will be trained to identify different patterns given a set of geometrical shapes or patterns.

Exercise

1. Draw the missing shapes in the last 2 boxes.

[2m]



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2. Draw the 5th Figure in the Geometric Pattern below.

[2 m]



Fig 1



Fig 2

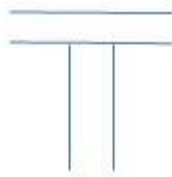


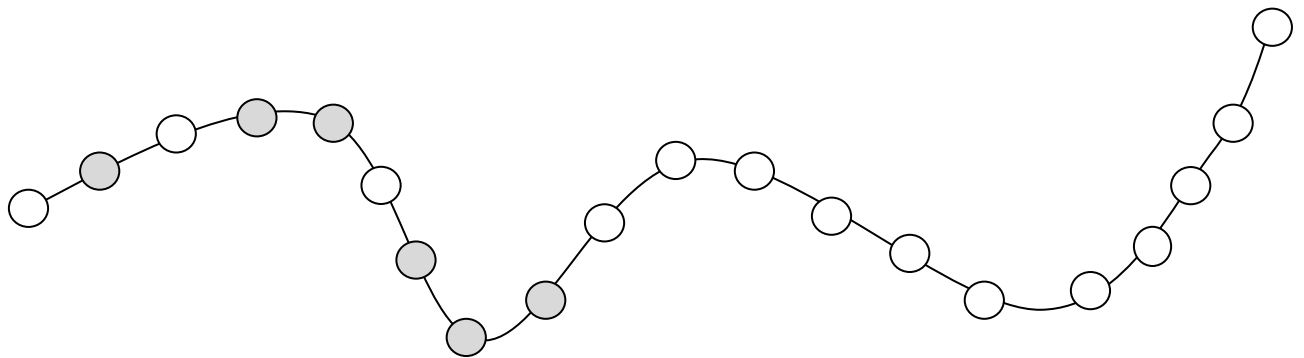
Fig 3



Fig 4

3. Alice is making a necklace using some black and white beads. Complete the chain by coloring the beads accordingly. [2m]

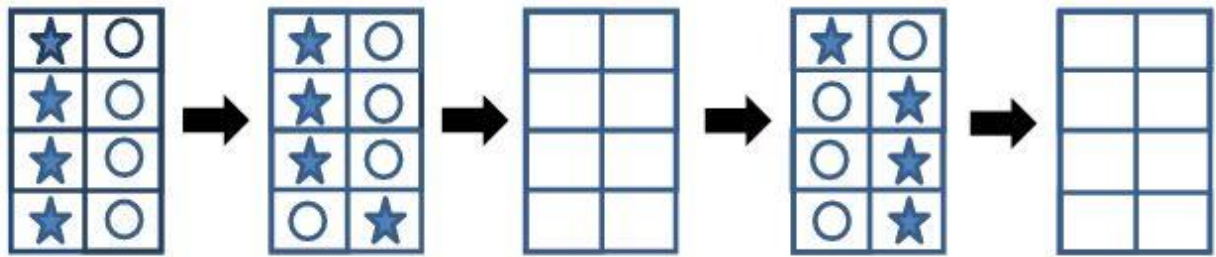
[2m]



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4. Complete the geometric pattern by drawing shapes in the 3rd and 5th figures. [2m]



5. Complete the missing figure below.

[2m]

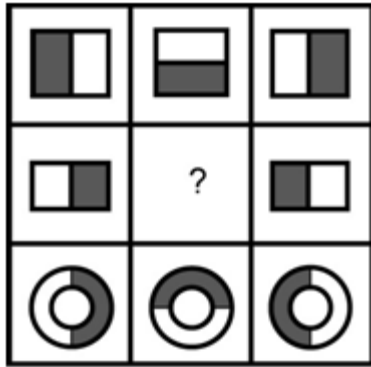


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6. Complete the geometric pattern.

[2m]



7. In the geometric pattern below, the first figure uses 2 sticks, the second figure uses 7 sticks, the third figure uses 15 sticks.

[2m]



Fig 1



Fig 2



Fig 3

How many sticks are there in the fifth figure?

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8.



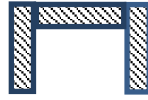
[2m]



A



B



C

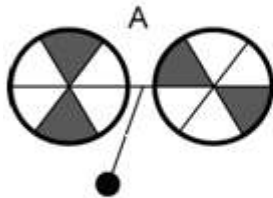
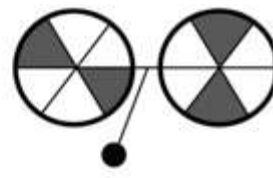
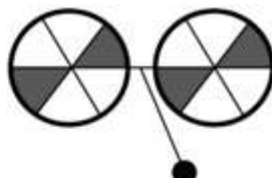
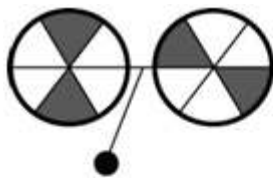


D

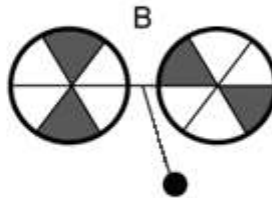
9. Study the pattern carefully. Which option comes next?

[2m]

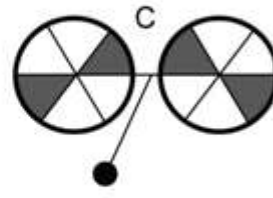
[Hint: Consider clockwise and anti-clockwise transformations.]



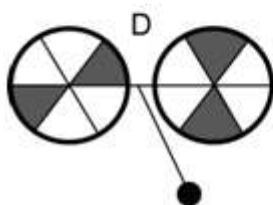
A



B



C



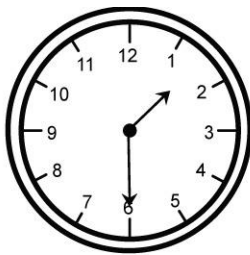
D

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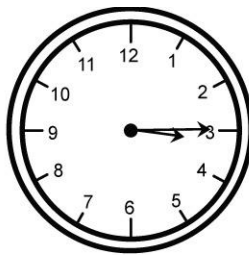
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10. Which choice can tell the time of the fifth clock?

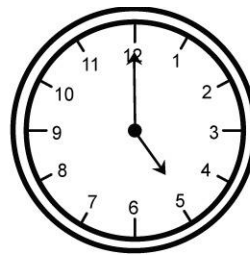
[2m]



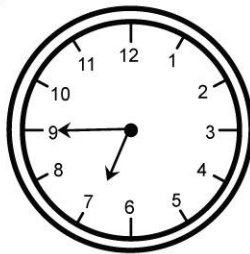
First



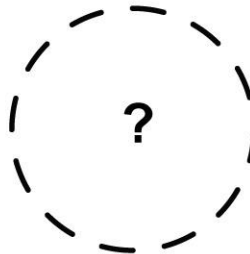
Second



Third

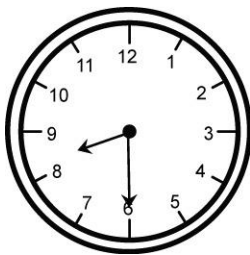


Fourth

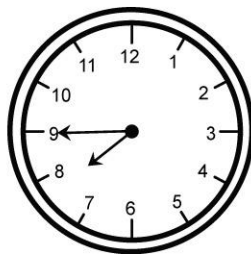


Fifth

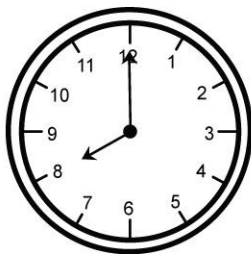
A



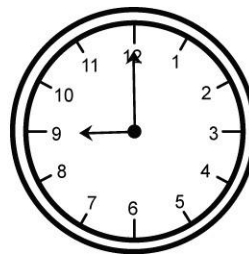
B



C



D

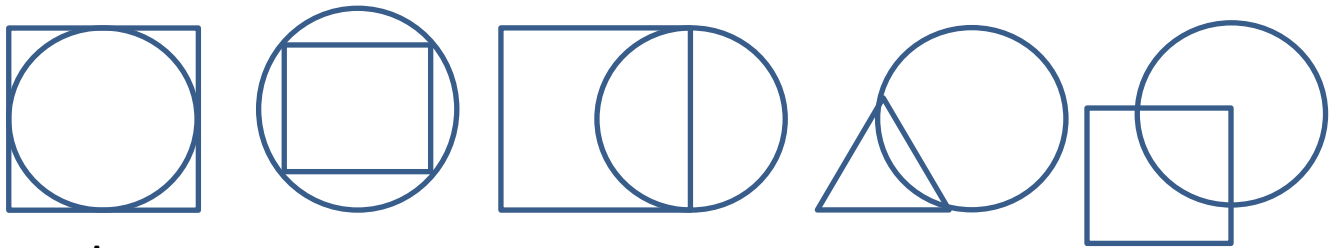


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11.a) Which one of the figures is not the same as the rest in?

[3m]



Ans: _____

b) Which is the missing figure?

[3m]



A

B

C

D



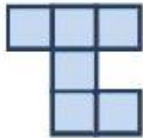
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12. Which two of the four pieces can be used to complete the 5 x 5 square?

[3m]

A



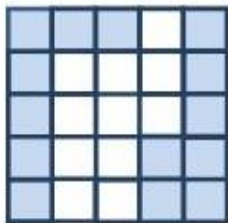
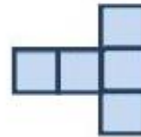
B



C



D



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13. Which of the following figures best replaces the question mark?

[3m]

[Hint: Consider possibility of folding the given shapes]



A



B



C



D



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14. Study the pattern below.

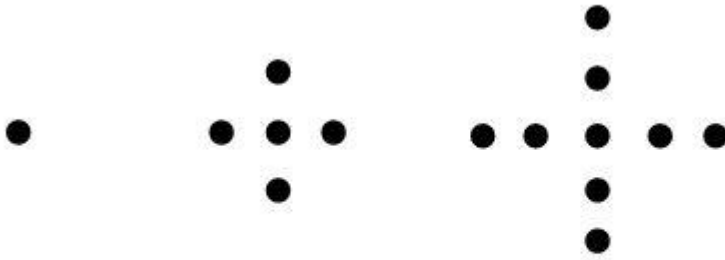


Fig 1

Fig 2

Fig 3

Fig 4

- a) How many dots are there in Fig 4? [1m]
- b) How many dots are there in total for the first five figures? [2m]

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15. Study the geometric pattern. Complete Fig 4.

[3m]

Fig 1



Fig 2



Fig 3



Fig 4

