



Venkateshwar International School

Sector-18, Dwarka, New Delhi-75

MOCK TEST EXAM (2021-22)

MATHEMATICS - IX

Time: 2 Hours

Max. Marks: 40

General Instructions:

1. The question paper consists of 14 questions divided into 3 sections A, B, C.
2. Section A comprises of 6 questions of 2 marks each. Internal choice has been provided in two questions.
3. Section B comprises of 4 questions of 3 marks each. Internal choice has been provided in one question.
4. Section C comprises of 4 questions of 4 marks each. An internal choice has been provided in one question. It contains two case study-based questions.

SECTION-A

1. Write the coefficients of x^2y and x^3 in the expansion of $(3x - 2y)^3$. (2)
2. A die is thrown 100 times and the following observations were recorded: (2)

Number on the die	1	2	3	4	5	6
Frequency	12	18	14	26	14	16

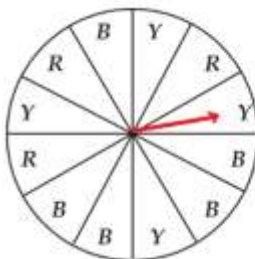
If this die is thrown again, find the probability that it shows

- a) a number less than 3.
 - b) an even number.
3. If one of the angles of a quadrilateral is 72° and the remaining three angles are in the ratio 2:3:4 then find the largest angle of the quadrilateral. (2)
 4. Two cubes each of edge 4 cm are joined end to end. Find the surface area of the resulting solid shape. (2)

OR

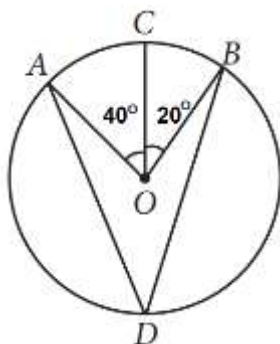
The outer radius of the circular part of a hemispherical bowl is 7 cm. Find the outer surface area of the bowl. (Use $\pi = \frac{22}{7}$).

5. A spinner is divided into 12 equal sectors showing 3 colours- yellow, blue and red as shown the following figure. After spinning the wheel, what is the probability that it will stop
a) at blue colour?
b) at green colour? (2)



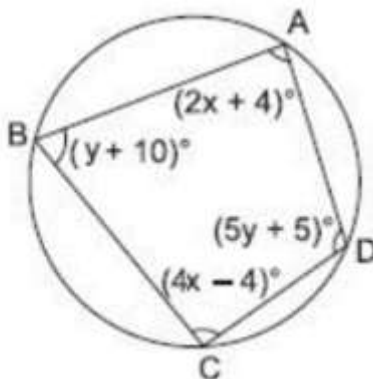
Y: Yellow
B: Blue
R: Red

6. In the figure given below, if O is the centre of the circle then find the measure of $\angle ADB$. (2)



OR

In the figure given below, find the values of x and y .



Section-B

7. Find the remainder when $p(x) = 9x^3 - 5x^2 + 17x - 17$ is divided by $g(x) = x - 1$. Verify the result using remainder theorem. (3)
8. A lead pipe is 42 cm long, its external diameter is 2.4 cm and the thickness of lead is 0.4 cm. Find the mass of the pipe if 1 cubic cm of lead weighs 12 g. (3)
(Use $\pi = \frac{22}{7}$).
9. PQ and RS are two parallel chords of a circle with centre O and radius = 13 cm. If PQ = 10 cm and RS = 24 cm, find the distance between PQ and RS, if they lie on the opposite sides of the centre. (3)
10. Factorise $p(x) = x^3 - x^2 - 14x + 24$. (3)

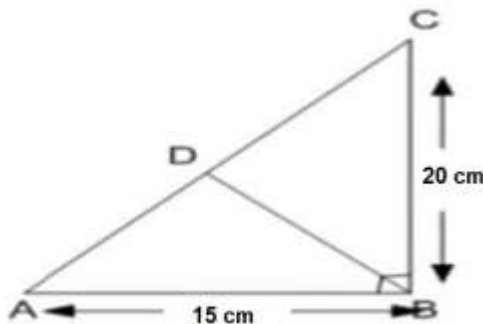
OR

If $x = 2$ and $x = -1$ are zeroes of $p(x) = 4x^3 - 9x^2 - ax + b$, find the values of a and b .

Section-C

11. Construct a triangle ABC in which BC = 4.5 cm, $\angle B = 45^\circ$ and $AB - AC = 2.5$ cm. Measure and write the lengths of AC and AB. (4)

12. Triangle ABC is right angled at B, with AB = 15 cm and BC = 20 cm. D is the mid-point of AC. Find the length of BD. (4)



OR

Prove that the quadrilateral formed by joining the mid-points of adjacent sides of a square in order, is a square.

13. Soumya and Kushagra started a new business together. The amount invested by both partners together is given by the polynomial $p(x) = x^2 - 2x - 35$, which is the product of their individual shares.
- i) Identify the type of polynomial $p(x) = x^2 - 2x - 35$, on the basis of (2)
- a) number of terms.
 - b) degree of the polynomial.
- ii) If Soumya invested more money than Kushagra, find out their individual shares in terms of x . (2)
14. Shikha went for a camping trip to Rishikesh with her mother. They both stayed in a tent which was in the shape of a right circular cone made up of tarpaulin. The tent was 9 m high with the base radius as 12 m.



- a) Find the area of tarpaulin required for making the tent. Ignore the stitching margins. (Use $\pi = 3.14$) (2)
- b) Find the length of the tarpaulin sheet required to make the tent if the width of the sheet is 6m. (2)