



INDIAN SCHOOL SOHAR
PERIODIC TEST – 3(2019 – 20)
MATHEMATICS

Class: IX
Date: 07-01-2020

MAX. MARKS: 20
DURATION: 45MTS

General Instructions:

- a. All questions are compulsory.**
b. Section A comprises 3 questions of 1 mark each, Section B comprises 2 questions of 2 marks each, Section C comprises 3 questions of 3 marks each and Section D comprises 1 question of 4 marks.

SECTION A

1. If $a = 2$, $b = 3$ then find the value of $a^b + b^a$.

OR

Find the value of $x^{a-b} \times x^{b-c} \times x^{c-a}$

2. If $x = 3 + \sqrt{2}$, then find the value of $x + \frac{1}{x}$.

3. The radius of the circle is 10 cm and the length of the chord is 12 cm. Find the distance of the chord from the centre.

SECTION B

4. Find the remainder when $f(x) = 4x^3 - 12x^2 + 14x - 3$ is divided by $g(x) = x - \frac{1}{2}$

OR

If $(x + 1)$ is a factor of $f(x) = kx^3 + x^2 - 2x + 4k - 9$, then find the value of "k".

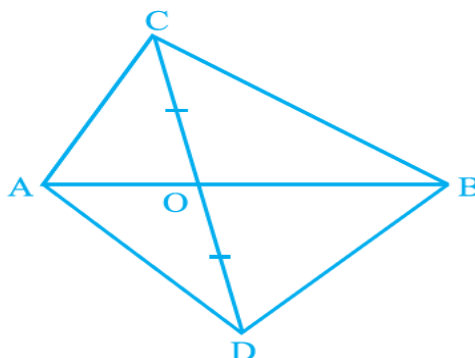
5. In triangle ABC, E is the mid-point of median AD. Find the ratio between ar (Δ BED) and ar (Δ ABC).

SECTION C

6. Prove that parallelograms on the same base and between the same parallels are equal in area.

OR

In Fig., ABC and ABD are two triangles on the same base AB. If line- segment CD is bisected by AB at O, show that ar (ABC) = ar (ABD).



7. If the diagonals of a quadrilateral bisect each other at right angles, then prove that it is a rhombus.

OR

ABCD is a rectangle and P, Q, R and S are mid-points of the sides AB, BC, CD and DA respectively. Show that the quadrilateral PQRS is a rhombus.

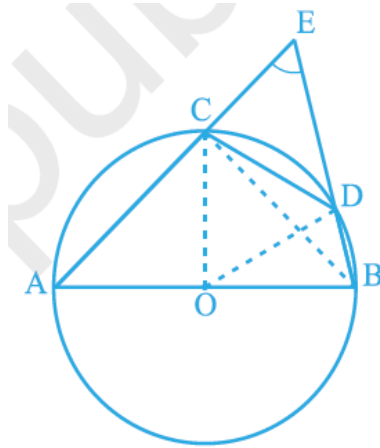
8. Construct a triangle PQR, in which $QR = 6\text{cm}$, $\angle Q = 60^\circ$ and $PR - PQ = 2\text{cm}$.

SECTION D

9. In an isosceles trapezium, prove that it is cyclic.

OR

In Fig., AB is a diameter of the circle, CD is a chord equal to the radius of the circle. AC and BD when extended intersect at a point E. Prove that $\angle AEB = 60^\circ$





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- c. All questions are compulsory.**
d. Section A comprises 3 questions of 1 mark each, Section B comprises 2 questions of 2 marks each, Section C comprises 3 questions of 3 marks each and Section D comprises 1 question of 4 marks.

SECTION A

1. If $a = 3$, $b = 2$ then find the value of $b^a + a^b$.

OR

Find the value of $k^{a-b} \times k^{b-c} \times k^{c-a}$

2. If $x = 4 - \sqrt{2}$, then find the value of $x + \frac{1}{x}$.

3. The radius of the circle is 10 cm and the distance of the chord from the centre is 8 cm. Find the length of the chord.

SECTION B

4. Find the remainder when $f(x) = 4x^3 - 12x^2 + 14x - 3$ is divided by $g(x) = x - \frac{1}{2}$

OR

If $(x - 1)$ is a factor of $f(x) = kx^3 + x^2 - 2x + 4k - 9$, then find the value of "k".

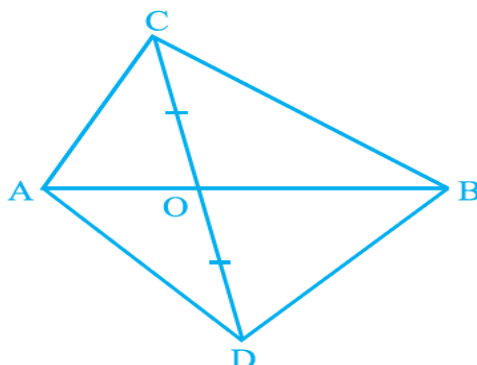
5. In triangle ABC, E is the mid-point of median AD. Find the ratio between ar (Δ BED) and ar (Δ ABC).

SECTION C

6. Prove that parallelograms on the same base and between the same parallels are equal in area.

OR

In Fig., ABC and ABD are two triangles on the same base AB. If line-segment CD is bisected by AB at O, show that ar (ABC) = ar (ABD).



7. If the diagonals of a quadrilateral bisect each other at right angles, then prove that it is a rhombus.

OR

ABCD is a rectangle and P, Q, R and S are mid-points of the sides AB, BC, CD and DA respectively. Show that the quadrilateral PQRS is a rhombus.

8. Construct a triangle ABC, in which $BC = 6\text{cm}$, $\angle B = 60^\circ$ and $AC - AB = 2\text{cm}$.

SECTION D

9. In an isosceles trapezium, prove that it is cyclic.

OR

In Fig., AB is a diameter of the circle, CD is a chord equal to the radius of the circle. AC and BD when extended intersect at a point E. Prove that $\angle AEB = 60^\circ$

