



INDIAN SCHOOL MUSCAT FINAL TERM EXAMINATION MATHEMATICS

CLASS: IX

Sub. Code: 041

Time Allotted: 3 Hrs

24.02.2019

Max. Marks: 80

General Instructions:

1. All questions are **compulsory**.
2. The question paper consists of **30** questions divided into **four sections A, B, C and D**.
3. **Section-A** comprises of **6** questions of **1 mark** each; **Section-B** comprises of **6** questions of **2 marks** each; **Section-C** comprises of **10** questions of **3 marks** each and **Section-D** comprises of **8** questions of **4 marks** each.
4. There is no overall choice in this question paper. However, an internal choice has been given for two questions of 1 mark each, two questions of 2 marks each, four questions of 3 marks each and three questions of 4 marks each.
5. Use of calculator is not permitted.

SECTION – A

- 1 Find the value of $\left[(64)^{\frac{1}{2}}\right]^{\frac{1}{3}}$. 1
 - 2 Find the mode of the numbers: 14, 25, 14, 28, 18, 17, 18, 14, 23, 22, 14, 18. 1
 - 3 Find the value of the polynomial $p(m) = m^2 - 2m + 8$ at $m = 2$. 1
- OR**
- If $f(x) = 3x + 9$, find the value of $f(7)$.
- 4 The total surface area of a cube is 1014 cm^2 . Find the length of its edge. 1
- OR**
- Calculate the volume of a cuboid whose dimensions are 8 cm, 6cm and 2.5 cm.
- 5 Find the supplement of $\frac{5}{3}$ of a right angle. 1
 - 6 State any one Euclid's axiom. 1

SECTION – B

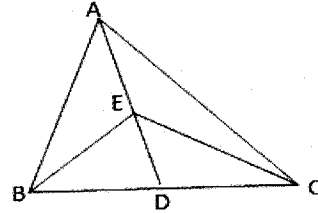
- 7 Find the value of 'k' so that $x = -1$ and $y = -1$ is a solution of the linear equation $9kx + 12ky = 63$. 2
- 8 A die is thrown 100 times and the outcomes are recorded as follows: 2

OUTCOME	1	2	3	4	5	6
FREQUENCY	25	20	12	18	15	10

If the die is thrown once again, what is the probability of getting (a) an even number (b) a prime number.

- 9 Find the curved surface area of a right circular cone whose slant height is 20cm and height is 16cm. (Take $\pi = 3.14$) 2

- 10 In the figure, E is any point on median AD of $\triangle ABC$. Show that $\text{ar}(\triangle ABE) = \text{ar}(\triangle ACE)$ 2



OR

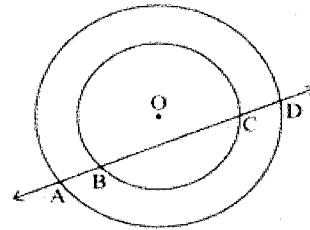
D and E are points on sides AB and AC respectively of $\triangle ABC$ such that $\text{ar}(\triangle DBC) = \text{ar}(\triangle EBC)$. Prove that $DE \parallel BC$.

- 11 Construct a $\triangle ABC$ in which $BC = 5\text{cm}$, $AB + AC = 7\text{ cm}$ and $\angle B = 60^\circ$. 2

- 12 Prove that equal chords of a circle subtend equal angles at the centre. 2

OR

If a line intersects 2 concentric circles with centre O at A, B, C and D, then prove that $AB = CD$.



SECTION - C

- 13 In a parallelogram, show that the angle bisectors of 2 adjacent angles meet at right angle. 3

OR

In $\triangle ABC$, D, E and F are the mid points of sides AB, BC and CA. If $AB = 6\text{ cm}$, $BC = 7.2\text{ cm}$ and $AC = 7.8\text{ cm}$, then find the perimeter of $\triangle DEF$.

- 14 For what value of k, is the polynomial $p(x) = 2x^3 - kx^2 + 3x + 10$ exactly divisible by $(x + 2)$? 3

OR

The polynomial $ax^3 + 3x^2 - 13$ and $2x^3 - 5x + a$ leave the same remainder in each case, when divided by $(x - 2)$. Find the value of 'a'

- 15 Three coins were tossed 30 times simultaneously. Each time, the number of tails occurring was noted down as follows: 0, 1, 1, 2, 0, 3, 1, 2, 0, 0, 1, 3, 2, 2, 0, 2, 3, 1, 0, 1, 1, 3, 0, 2, 0, 1, 0, 3, 2, 0. Prepare a frequency distribution table for the data. 3

- 16 Factorize completely: $16m^3 - 54n^3$. 3

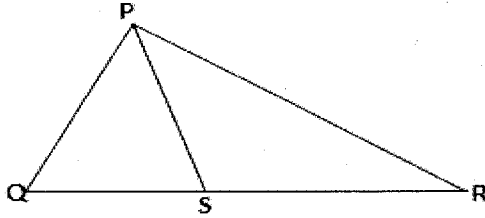
- 17 AB and CD are 2 parallel chords of a circle, which is on opposite side of the centre, such that $AB = 10\text{ cm}$, and $CD = 24\text{ cm}$. If the distance between the chords is 17 cm, then find the radius of the circle. 3

OR

ABCD is a cyclic quadrilateral whose diagonals intersect at E. If $\angle DBC = 70^\circ$, $\angle BAC = 30^\circ$, find $\angle BCD$. Further, if $AB = BC$, find $\angle ECD$.

- 18 The sides of a triangle are 120m, 170m and 250m. Find its area and height of the triangle, if its base is 250m. 3

- 19 In the given figure, $PR > PQ$ and PS bisects $\angle QPR$. Prove that $\angle PSR > \angle PSQ$. 3



- 20 The total surface area of a solid right circular cylinder is 1540 cm^2 . If the height is 4 times the radius of the base, then find the height of the cylinder. 3

- 21 Construct a $\triangle ABC$, in which $\angle B = 30^\circ$, $\angle C = 90^\circ$ and $AB + BC + CA = 12 \text{ cm}$. 3

- 22 Represent $\sqrt{5}$ on the number line. 3

OR

Show that $\frac{1}{1+x^{a-b}} + \frac{1}{1+x^{b-a}} = 1$.

SECTION - D

- 23 A hemispherical bowl, full of milk, has internal diameter 36 cm. The milk is to be filled in cylindrical bottles of radius 3 cm and height 6 cm. How many bottles are required to empty the bowl? 4

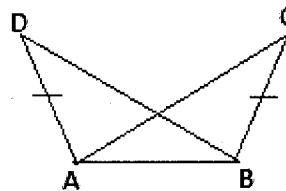
OR

Metallic spheres of radii 6 m, 8 m and 10 m respectively are melted to form a single solid sphere. Find the diameter of the resulting sphere.

- 24 By long division method, show that $(x - 3)$ is a factor of $2x^4 + 3x^3 - 26x^2 - 5x + 6$. 4

- 25 If $x = \frac{\sqrt{7} + \sqrt{6}}{\sqrt{7} - \sqrt{6}}$ and $y = \frac{\sqrt{7} - \sqrt{6}}{\sqrt{7} + \sqrt{6}}$, then find the value of $(y + x)$. 4

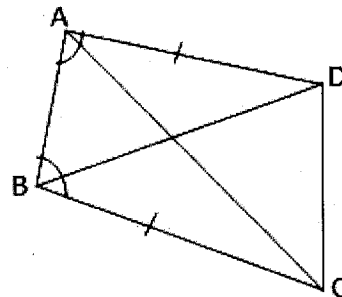
- 26 In the figure, $\triangle ABC$ and $\triangle ABD$ are such that $AD = BC$, $\angle CAD = \angle DBC$ and $\angle CAB = \angle DBA$. Prove that $BD = AC$. 4



OR

In the figure, ABCD is a quadrilateral in which $AD = BC$ and $\angle DAB = \angle CBA$. Prove that

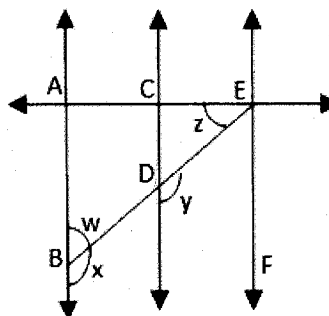
- (i) $\triangle ABD \cong \triangle BAC$
- (ii) $BD = AC$
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- 27 Draw the graph of the linear equation $x + y = 7$. Verify from the graph that $(8, -1)$ is a solution of the equation $x + y = 7$. 4

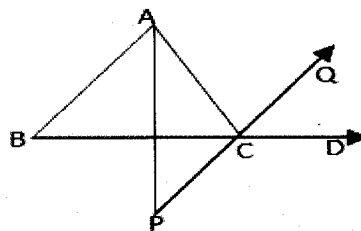
- 28 Without drawing the graph, find, in which quadrant or on which axis do each of the following points lie? (a) (-2, 4), (b) (3, -1), (c) (-3, -5), (d) (-1,0), (e) (1, 2), (f) (0, 4), (g) (-5, -1) and (h) (0, -7). 4

- 29 In the given figure, $AB \parallel CD$, $CD \parallel EF$ and $EA \perp AB$. If $\angle BEF = 65^\circ$ find the values of w , x , y and z 4



OR

In the given figure, AP is the angle bisector of $\angle A$ and PQ is the bisector of $\angle ACD$. Prove that $\angle APC = \frac{1}{2} \angle ABC$.



- 30 Consider the marks obtained by 50 students of a class in a test, out of 80. 4

Marks	0 - 20	20 - 40	40 - 60	60 - 80
No. of Students	14	11	12	13

Draw a histogram and a frequency polygon for the data on the same graph sheet.

End of the Question Paper



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SECTION - B

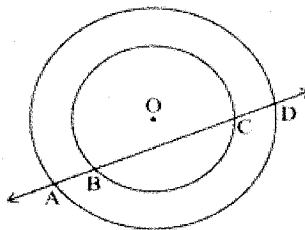
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9 Find the value of 'k' so that $x = -1$ and $y = -1$ is a solution of the linear equation $9kx + 12ky = 63$ 2

10 If a line intersects 2 concentric circles with centre O at A, B, C and D, then prove that $AB = CD$. 2



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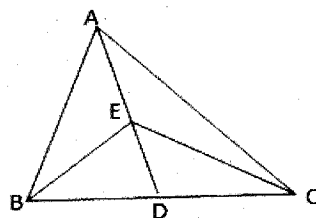
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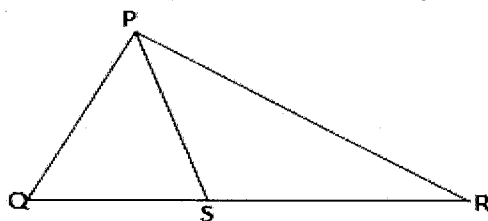
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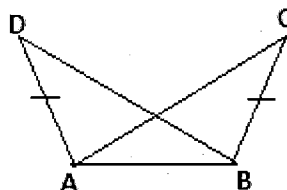
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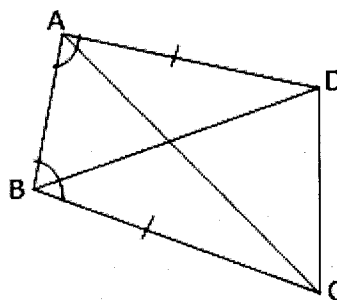
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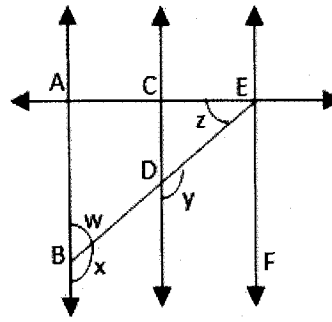


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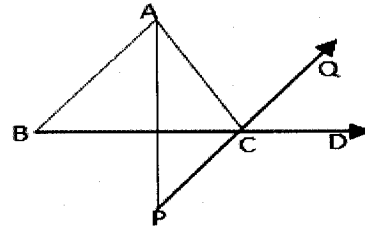
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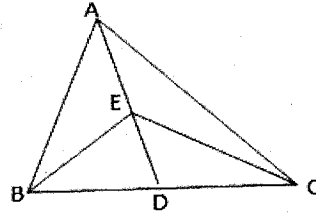
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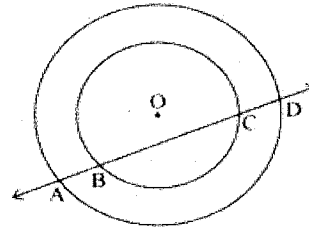
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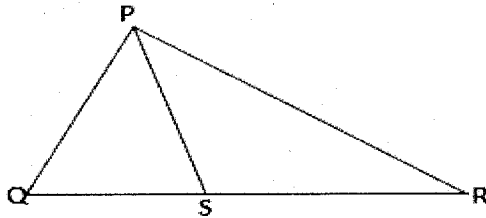
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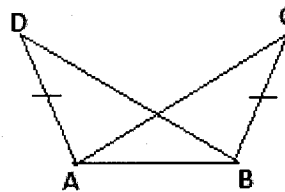
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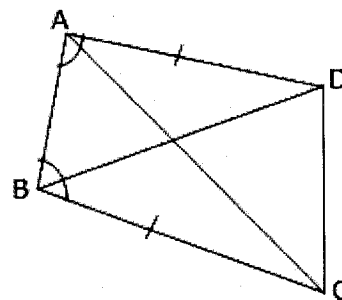
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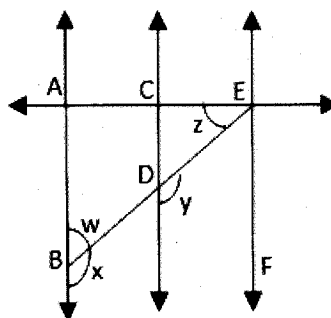
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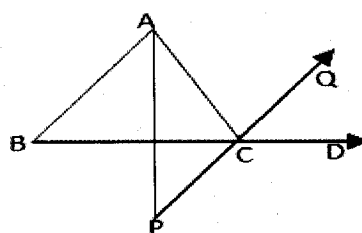
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