Roll Number		

SET A

INDIAN SCHOOL MUSCAT
SECOND TERM EXAMINATION
MATHEMATICS-041

CLASS: IX

Time Allotted: 2 Hrs.

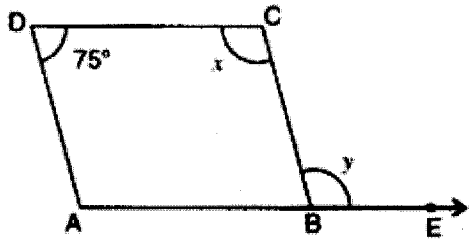
24.02.2022

Max. Marks: 40

General Instructions:

1. The question paper consists of 14 questions divided into 3 sections A, B, C.
2. All questions are compulsory.
3. Section A comprises of 6 questions of 2 marks each. Internal choice has been provided in two questions.
4. Section B comprises of 4questions of 3 marks each. Internal choice has been provided in one question.
5. 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.

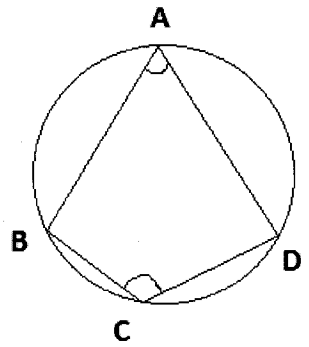
Q No	Section- A	Marks
1	Find the value of 'k', if (x - 2) is a factor of $p(x) = x^2 + kx + 2k$	2
2	ABCD is a parallelogram in which $\angle ADC = 75°$ and side AB is produced to point E as shown in the figure. Find x + y.	2



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

OR

In the figure $\angle A = (2x + 4)°$ and $\angle C = (4x - 64)°$, find the value of 'x'.



4 What is the volume of a right circular cylinder whose base area is 606 cm^2 and height is 2m? 2

OR

Find the diameter of a sphere whose surface area is 616 cm^2

5 A die is rolled 200 times and its outcomes are recorded as below. 2

Outcome	1	2	3	4	5	6
Frequency	25	35	40	28	42	30

Find the probability of getting

i. An even prime number

ii. An odd number

6. In an experiment, a coin is tossed 600 times. If the tail turns up 380 times, find the experimental probability of getting 2

i. A head

ii. A tail

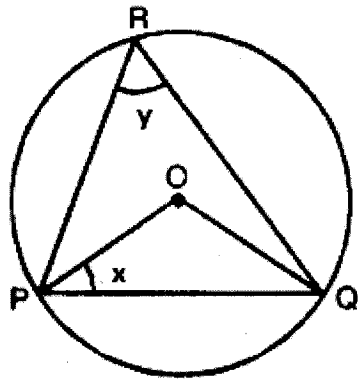
Section- B

7 Factorise: $250x^3 - 432y^3$ 3

OR

Factorise: $9x^2 + y^2 + z^2 - 6xy + 2yz - 6xz$. Hence, find its value when $x = 1$, $y = 2$ and $z = -1$

8 In the given figure, O is the centre of the circle. PQ is a chord of the circle and R is any point on the circle. If $\angle PRQ = y$ and $\angle OPQ = x$, then find $x + y$. 3



9 The length, breadth and height of a rectangular box are in the ratio 1: 2: 3. Find the volume of the box, when its surface area is 352 cm^2. 3

10 Find the remainder, when $P(x) = x^3 + x^2 + x + 1$ is divided by $(x - \frac{1}{2})$, using remainder theorem. 3

Section- C

11 The polynomials $ax^3 - 3x^2 + 4$ and $2x^3 - 5x + a$ when divided by $(x - 2)$ leave the remainders 'p 'and 'q' respectively. If $p - 2q = 4$, find the value of 'a'. 4

OR

Factorise: $x^3 + 2x^2 - 5x - 6$

12 Construct a triangle ABC in which base BC = 5 cm, AB + AC = 7 cm and $\angle ABC = 60°$. 4

CASE BASED QUESTIONS

13 Dinesh is a student of class IX. Some guests have come to his house. He went to the shop to get soft drinks for the guests, where the shopkeeper told that he had two packs of soft drinks available 4

(i) A tin can with a rectangular base of length 5 cm and width 4 cm, having a height of 15 cm and

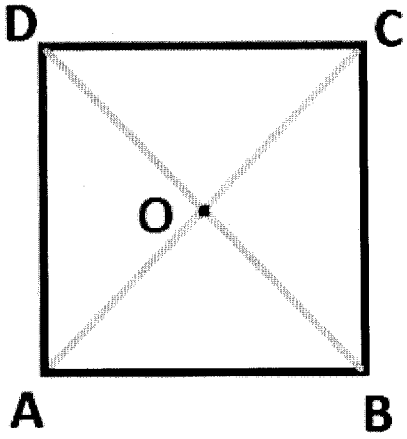
(ii) A cylindrical can with circular base of diameter 7 cm and height 10 cm.

(Take $\pi = \frac{22}{7}$)

(a) Find the capacity of the cylindrical can of soft drinks.

(b) Find the amount of tin sheet required for making a can with rectangular base.

14. Ankit is studying in IX standard. His father purchased a plot which is in a square shape. After visiting the land, few questions came in his mind. Give answers to his questions by looking at the figure. 4



(a) If the distance OA is 50 m, then what is the distance OD? Why?

(b) Are the triangular plots AOB and COD equal? Give reason(s)

End of the Question Paper

Type equation here.

Roll Number		

SET B

INDIAN SCHOOL MUSCAT
SECOND TERM EXAMINATION
MATHEMATICS-041

CLASS: IX

Time Allotted: 2 Hrs.

24.02.2022

Max. Marks: 40

General Instructions:

1. The question paper consists of 14 questions divided into 3 sections A, B, C.
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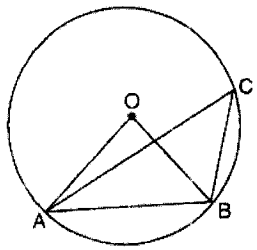
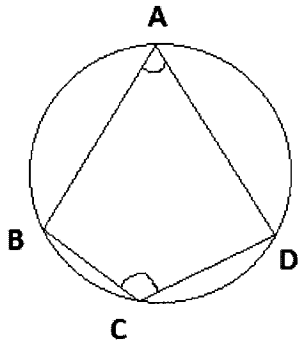
Q No **Section- A** **Marks**

1. In the given figure, if O is the centre of circle. Chord AB is equal to radius of the circle, then find ∠ACB. 2



OR

In the figure ∠A= (2x + 4)° and ∠C = (4x – 64)° , find the value of 'x'.



2. A die is rolled 200 times and its outcomes are recorded as below. 2

Outcome	1	2	3	4	5	6
Frequency	25	35	40	28	42	30

Find the probability of getting

i. An even prime number
ii. An odd number

3. What is the volume of a right circular cylinder whose base area is 606 cm^2 and height is 2m? 2

OR

Find the diameter of a sphere whose surface area is 616 cm^2

4. In an experiment, a coin is tossed 600 times. If the tail turns up 380 times, find the experimental probability of getting 2
i. A head
ii. A tail

5. In a parallelogram ABCD, if diagonal AC bisects ∠A as well as ∠C, then show that it is a rhombus. 2

6. Factorise: $4a^2 - 9b^2 - 2a - 3b$ 2

Section- B

7. Find the remainder, when $p(x) = x^3 + x^2 + x + 1$ is divided by $(x - \frac{1}{2})$, using remainder theorem. 3

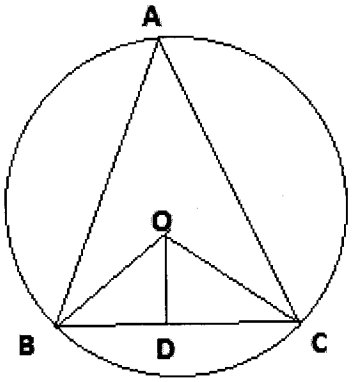
8. The length, breadth and height of a rectangular box are in the ratio 1: 2: 3. Find the volume of the box, when its surface area is 352 cm^2. 3

9. Factorise: $250x^3 - 432y^3$ 3

OR

Factorise: $9x^2 + y^2 + z^2 - 6xy + 2yz - 6xz$. Hence, find its value when x = 1, y = 2 and z = - 1

10. In the figure 'O' is the centre of the circle and OD ⊥ BC, then prove that ∠BOD = ∠BAC. 3



Section- C

11. Construct a triangle ABC in which base BC = 7.5 cm, AB - AC = 2.5 cm and ∠ABC = 45°. 4

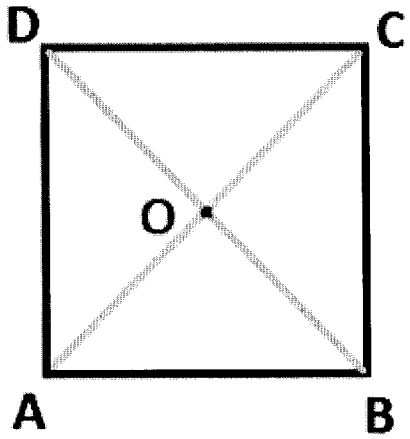
12. The polynomials $ax^3 - 3x^2 + 4$ and $2x^3 - 5x + a$ when divided by (x - 2) leave the remainders 'p 'and 'q' respectively. If p - 2q = 4, find the value of 'a'. 4

OR

Factorise: $x^3 + 2x^2 - 5x - 6$

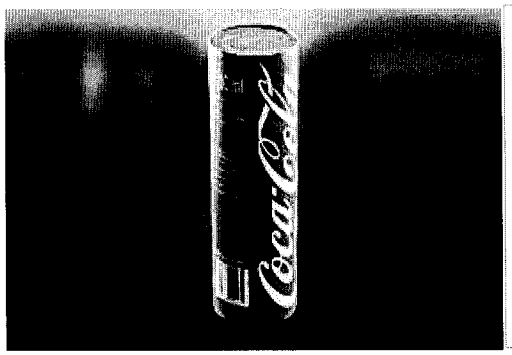
CASE BASED QUESTIONS

13. Ankit is studying in IX standard. His father purchased a plot which is in a square shape. After visiting the land, few questions came in his mind. Give answers to his questions by looking at the figure. 4



(a) If the distance OA is 50 m, then what is the distance OD? Why?
(b) Are the triangular plots AOB and COD equal? Give reason(s)

14. Dinesh is a student of class IX. Some guests have come to his house. He went to the shop to get soft drinks for the guests, where the shopkeeper told that he had two packs of soft drinks available 4



(i) A tin can with a rectangular base of length 5 cm and width 4 cm, having a height of 15 cm and
(ii) A cylindrical can with circular base of diameter 7 cm and height 10 cm.
(Take $\pi = \frac{22}{7}$)
(a) Find the amount of material required to make 5 cylindrical cans of soft drinks.
(b) Find the capacity of the can with rectangular base.

End of the Question Paper

Roll Number		

SET C

INDIAN SCHOOL MUSCAT
SECOND TERM EXAMINATION
MATHEMATICS-041

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Q No | **Section - A** | **Marks**

1. A die is rolled 200 times and its outcomes are recorded as below. 2

Outcome	1	2	3	4	5	6
Frequency	25	35	40	28	42	30

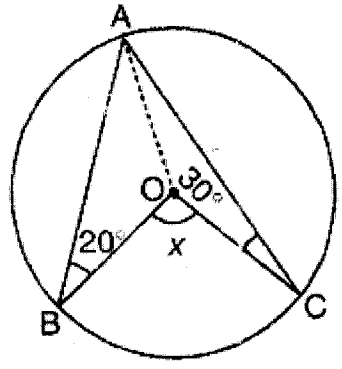
Find the probability of getting
(i) An even prime number
(ii) An odd number

2. What is the volume of a right circular cylinder whose base area is 606 cm^2 and height is 2m? 2

OR

Find the diameter of a sphere whose surface area is 616 cm^2

3. In the figure, 'O' is the centre of the circle, $\angle ABO = 20°$ and $\angle ACO = 30°$, where A, B, C are points on the circle. What is the value of x? 2



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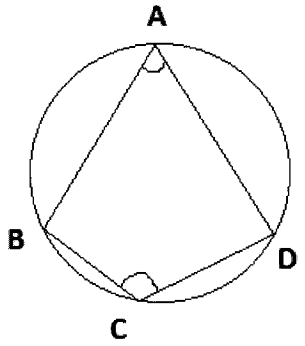
In the figure $\angle A = (2x + 4)°$ and $\angle C = (4x - 64)°$, find the value of 'x'.



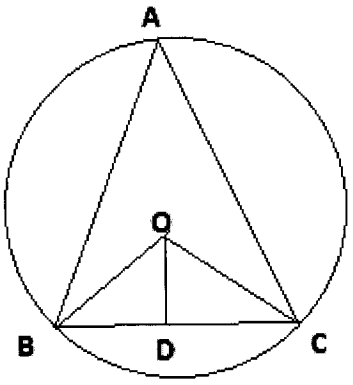
4. In an experiment, a coin is tossed 600 times. If the head turns up 380 times, find the experimental probability of getting 2
   (i) A tail
   (ii) A head

5. Factorise: $x^4y^4 - 256z^4$ 2

6. Two opposite angles of a parallelogram are $(3x - 2)°$ and $(63 - 2x)°$.Find all the angles of the parallelogram. 2

Section - B

7. In the figure 'O' is the centre of the circle and OD $\perp$ BC, then prove that 3
   $\angle BOD = \angle BAC$.



8. Factorise: $375x^3 - 648y^3$ 3

OR

Factorise: $9x^2 + y^2 + z^2 - 6xy + 2yz - 6xz$. Hence, find its value when $x = -1$, $y = 2$ and $z = 1$

9. Find the remainder, when $p(x) = x^3 + x^2 + x + 1$ is divided by $(x + \frac{1}{2})$, using remainder theorem. 3

10. The floor of a rectangular hall has a perimeter 300 m. If the cost of painting the 4 walls at the rate of Rs.10 per m^2 is Rs.18000, find the height of the hall. 3

Section - C

11. Construct triangle ABC in which BC = 7 cm, $\angle ABC = 75°$ and AB + AC = 11cm 4

12. The polynomials $px^3 - 3x^2 + 4$ and $2x^3 - 5x + p$ when divided by $(x - 2)$ leave the remainders 'a 'and 'b' respectively. If $a - 2b = 4$, find the value of 'p'. 4

OR

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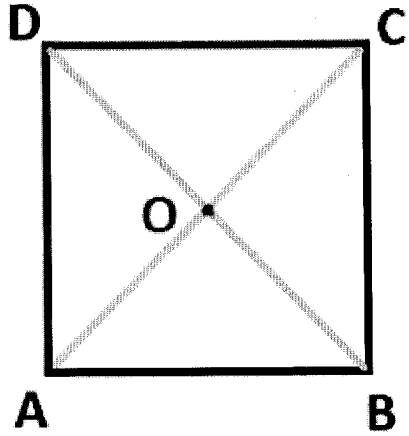

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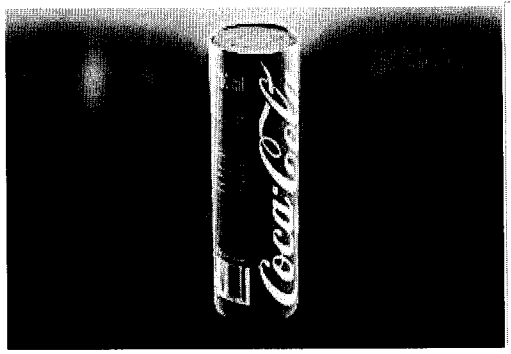

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(Take $\pi = \frac{22}{7}$)
(a) Find the capacity of the cylindrical can of soft drinks.
(b) Find the amount of tin sheet required for making a can with rectangular base.

End of the Question Paper