

**Practice Paper**  
**CLASS – X**  
**SUBJECT – MATHS**

TIME :- 3 Hrs.

MM:- 80

**SECTION-A**

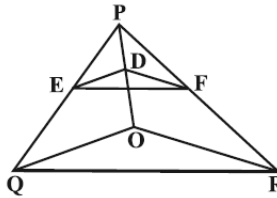
- Without actually performing long division, state whether the following rational number will have a terminating decimal expansion or non terminating repeated decimal expansion:  $\frac{77}{210}$ .
- Find the remainder when  $p(x) = x^3 - 6x^2 + 2x - 4$  when divided by  $1 - 2x$ .
- For what value of  $k$  will  $k + 9$ ,  $2k - 1$ ,  $2k + 7$  are the consecutive terms of an AP?
- If the areas of two similar triangles are in the ratio  $25 : 64$ , write the ratio of their corresponding sides.
- The coordinates of the mid-point of the line segment joining the points  $(3p, 4)$  and  $(-2, 2q)$  are  $(5, p)$ . Find the values of  $p$  and  $q$ .
- If  $\sin 3\theta = \cos(\theta - 6)$ , where  $3\theta$  is acute angle, find the value of  $\theta$ .

**SECTION-B**

- Prove that  $3\sqrt{2}$  is irrational.
- Find whether the lines representing the following pair of linear equations intersect at a point, are parallel or coincident:  $2x - 3y + 6 = 0$ ,  $4x - 5y + 2 = 0$ .
- Check whether  $-150$  is a term of the AP :  $11, 8, 5, 2 \dots$
- In an A.P.  $a = 3$ ,  $n = 8$ ,  $S = 192$ , find  $d$ .
- A box contains 5 red marbles, 8 white marbles and 4 green marbles. One marble is taken out of the box at random. What is the probability that the marble taken out will be (i) white ? (ii) not green?
- 17 cards numbered  $1, 2, 3, \dots, 17$  are put in a box and mixed thoroughly. One person draws a card from the box. Find the probability that the number on the card is (i) divisible by 3 (ii) divisible by 3 and 2 both.

**SECTION-C**

- Show that any positive odd integer is of the form  $8q + 1$ , or  $8q + 3$ , or  $8q + 5$ , or  $8q + 7$  where  $q$  is some integer.
- Find all the zeroes of the polynomial  $f(x) = 3x^4 + 6x^3 - 2x^2 - 10x - 5$ , if two of its zeroes are  $-1$  and  $-1$ .
- A boat can go 20km downstream and 30 km upstream in 3 hrs. It can go 20km downstream and 10 km upstream in  $1\frac{2}{3}$  hrs. Find the speed of boat in still water and speed of stream. **OR**  
Yogesh scores 40 marks in a test, receiving 3 marks for each right answer and losing 1 mark for each wrong answer. Had 4 marks been awarded for each correct answer and 2 marks been deducted for each wrong answer, Yogesh would have scored 50 marks. How many questions were there in the test?
- Determine the ratio in which the line  $2x + y - 4 = 0$  divides the line segment joining the points  $A(2, -2)$  and  $B(3, 7)$ .
- If  $\sqrt{3} \cot^2 x - 4 \cot x + \sqrt{3} = 0$ , then find the value of  $\cot^2 x + \tan^2 x$ .



18. In Fig.,  $DE \parallel OQ$  and  $DF \parallel OR$ . Show that  $EF \parallel QR$ .

**OR**

D is a point on the side BC of a triangle ABC such that  $\angle ADC = \angle BAC$ .  
Show that  $CA^2 = CB \cdot CD$ .

19. A quadrilateral ABCD is drawn to circumscribe a circle. Prove that  $AB + CD = AD + BC$   
20. To warn ships for underwater rocks, a lighthouse spreads a red coloured light over sector of angle  $80^\circ$  to a distance of 16.5 km. Find the area of the sea over which the ships are warned. (Use  $\pi = 3.14$ )  
21. A solid metallic sphere of radius 10.5cm is melted and recast into a number of smaller cones, each of radius 3.5cm and height 3cm. find number of cones so formed .

**OR**

A hemispherical tank full of water is emptied by a pipe at the rate of  $25/7$  litres per second. How much time will it take to empty half the tank, if it is 3m in diameter? (Take  $\pi = 22/7$ )

22. The distribution below shows the number of wickets taken by bowlers in one-day cricket matches. Find the mean number of wickets by choosing a suitable method.

<b>Number of wickets</b>	20 - 60	60 - 100	100 - 150	150 - 250	250 - 350	350 - 450
<b>Number of bowlers</b>	7	5	16	12	2	3

**SECTION-D**

23. A motor boat whose speed is 18 km/h in still water takes 1 hour more to go 24 km upstream than to return downstream to the same spot. Find the speed of the stream.

**OR**

Solve for x, using the quadratic formula:  $ax^2 - (a^2+b^2)x + ab=0$

24. Split 207 into three parts such that these are in AP and the product of the two smaller parts is 4623.  
25. If  $\sec A = x + \frac{1}{4x}$ , then prove that  $\sec A + \tan A = 2x$  or  $\frac{1}{2x}$ .  
26. An aeroplane flying horizontally 1 km above the ground is observed at an elevation of  $60^\circ$ . After 10 seconds, its elevation is observed to be  $30^\circ$ . Find the speed of the aeroplane in km/hr.

**OR**

The angle of elevation of the top of a building from the foot of the tower is  $30^\circ$  and the angle of elevation of the top of the tower from the foot of the building is  $60^\circ$ . If the tower is 50 m high, find the height of the building.

27. Prove that the ratio of the areas of two similar triangles is equal to the square of the ratio of their corresponding sides.  
28. Construct an isosceles triangle whose base is 8 cm and altitude 4 cm and then another triangle whose sides are  $3/2$  times the corresponding sides of the isosceles triangle.  
29. A right triangle, whose sides are 3 cm and 4 cm (other than hypotenuse) is made to

revolve about its hypotenuse. Find the volume and surface area of the double cone so formed.

30. If the median of the distribution given below is 28.5, find the values of  $x$  and  $y$ .

<b>Class interval</b>	<b>Frequency</b>
0 - 10	5
10 - 20	$x$
20 - 30	20
30 - 40	15
40 - 50	$y$
50 - 60	5
<b>Total</b>	<b>60</b>

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