

## SUMMATIVE ASSESSMENT

Class – IX

Mathematics

Time allowed: 3 hours (Maximum Marks: 90)

### General Instructions:

1. All question are compulsory.
  2. The question paper consists of 31 questions divided into four sections A, B, C and D. Section -A comprises of 4 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 11 question of 4 marks each.
  3. There is no overall choice in this question paper.
  4. Use of calculator is not permitted.
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### Section A

Question numbers 1 to 4 carry 1 mark each:

Q.1 If  $125^x \frac{25}{5^x} =$  find x.

Q.2 Find the value of  $P\left(\frac{2}{3}\right)$  for  $p(y) = 2y^3 - y^2 - 13y - 6$ .

Q.3 Do the points lie in the same quadrant? (6,-6) and (-6, 6).

Q.4 Find complementary angle of  $35^\circ$

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### Section B

Question numbers 5 to 10 carry 2 marks each:

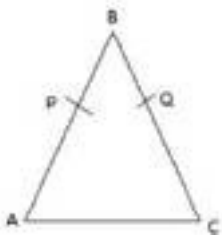
Q.5 Without actually calculating the cubes, Find the value of  $45^3 - 25^3 - 20^3$ .

Q.6 If the area of an equilateral triangle is  $16\sqrt{3}\text{cm}^2$  The Find perimeter.

Q.7 Angles of a triangle are in the ration 3:4:5. Find largest angle of the triangle.

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Q.8  $AB=BC$  and  $BP=BQ$  Show that  $AP=CQ$



Q.9 Plot the points  $(2,-2)$ ,  $(-4,4)$  and join them does the line pass through origin.

Q.10 Find a rational and irrational no. between  $\sqrt{2}$  and  $\sqrt{3}$ .

### Section C

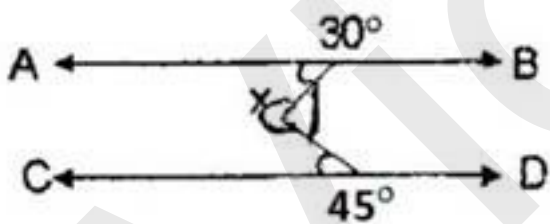
Question numbers 11 to 20 carry 3 marks each:

Q.11 Express  $0.12\bar{3}$  in the form of  $\frac{p}{q}$

Q.12 Find the area of triangular park whose sides are of length 120m, 80m and 50m.

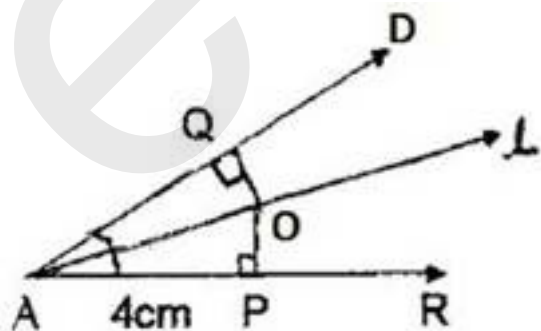
Q.13 If  $(3x-2)$  is a factor of  $3x^3 + x^2 - 20x + 12$ . Find other factors.

Q.14 If  $AB \parallel CD$ . Determine  $x$ .



Q.15 If two lines intersect each other then prove that vertically opposite angles are equal.

Q.16 If a line  $l$  is the bisector of  $\angle A$ , then find  $OQ$ .

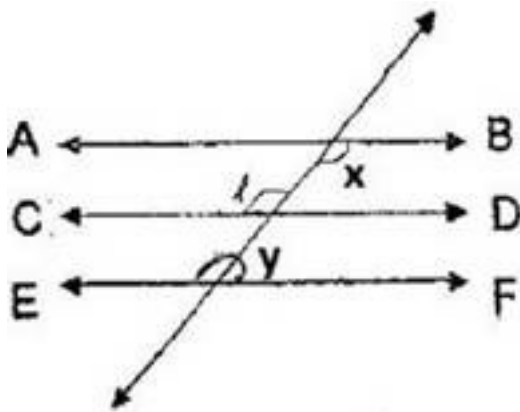


**Q.17** Mr. Saxena has a rectangular plot of land ABCD which he decided to donate to his society for the organization of fitness campaign like yoga, mediation etc. the co ordinates of three vertices of plot are A(-2,-5), B(6,-5) and (6,-1). Plot these points find co-ordinates of fourth vertex.

Which value does Mr. Saxena possess?

**Q.18** find product using suitable identity  $\left(x - \frac{1}{2}\right)\left(x + \frac{1}{2}\right)\left(x^2 + \frac{1}{x^2}\right)\left(x^4 + \frac{1}{x^4}\right)$

**Q.19** If  $AB \parallel CD$ ,  $CD \parallel EF$  and  $x:y=3:2$  find Z.



**Q.20** ABC is an isosceles  $\Delta$  has points D and E on BC such that  $BE=CD$  Show that  $AD=AE$ .

### Section D

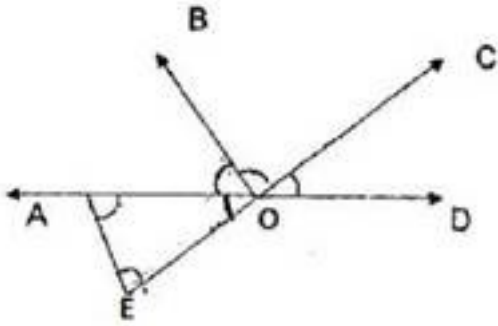
Questions numbers 21 to 31 carry 4 marks each:

**Q. 21** Simplify :  $\frac{\sqrt[3]{6}}{\sqrt{2} + \sqrt{3}} + \frac{\sqrt[6]{2}}{\sqrt{6} + \sqrt{3}} - \frac{\sqrt[3]{3}}{\sqrt{6} + \sqrt{2}}$

**Q. 22** The volume of cuboid is polynomial.  $P(x) = 4x^3 + 20x^2 + 33x + 18$  find possible expression for dimension of the cuboid.

**Q.23** Factorise:  $x^{12} - 1$

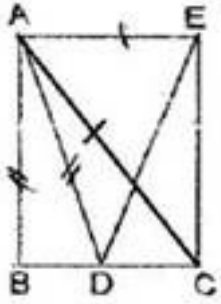
**Q.24** Prove that angles opposite to equal sides of a triangle are equal



Q.25 Find (a=b)

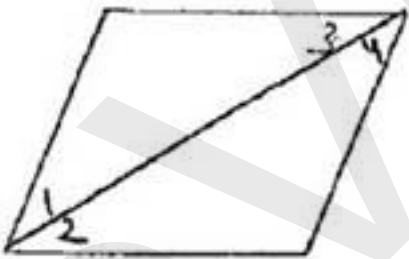
Q.26  $AC=AE$ ,  $AB=AD$  and  $\angle BAD = \angle EAC$  Show that  $BC=DE$

Q.27 If  $x^3 + ax^2 + bx + 6$  has  $(x - 2)$  as a factor and leaves a remainder 3 when divided by  $(x - 3)$ . Find the values of  $a$  and  $b$ .



Q.28  $T$  is a point on side  $QR$  of  $\triangle PQR$  and  $S$  is an exterior point such that  $RT=ST$ . Prove that  $PQ+PR>QS$

Q.29  $\angle 1 = \angle 3$ ,  $\angle 2 = \angle 4$ ,  $\angle 3 = \angle 4$  Write the relation between  $\angle 1$  and  $\angle 2$  Using a Euclid's axiom



Q.30 Locate  $\sqrt{3}$  on a number line.

Q.31 If  $x+y+z = 10$  and  $x^2 + y^2 + z^2 = 40$  Find  $xy+yz+zx$ .