Class – IX
Sub: Mathematics

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^o

Section B

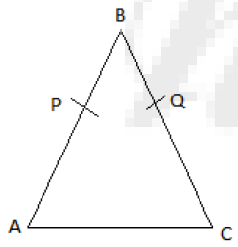
Question numbers 5 to 10 carry 2 marks each:

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 $\sqrt[16]{3}cm^2$ The Find perimeter.

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

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

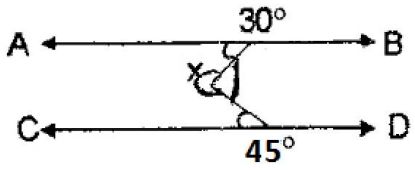
Question numbers 11 to 20 carry 3 marks each.

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.

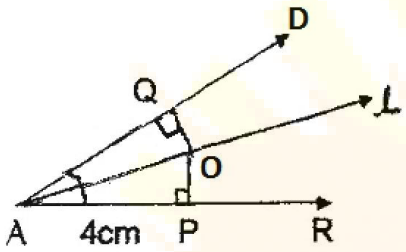
Q.13 If (3x-2) is a factor of $3x^3 + x^2 - 20x + 12$. Find other factors.

Q.14 If AB||CD. Determine x.



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

Q.16 If a line 1 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||CD, CD||EF and x:y=3:2 find Z.

Section D

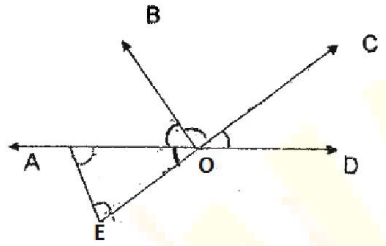
Questions numbers 21 to 31 carry 4 marks each:

Q. 21 Simplify : $\frac{\sqrt[2]{6}}{\sqrt{2}+\sqrt{3}}+\frac{\sqrt[6]{2}}{\sqrt{6}+\sqrt{3}}-\frac{\sqrt[8]{3}}{\sqrt{6}+\sqrt{2}}$

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 : $x^{12}-1$

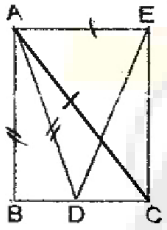
Q.24 Prove that angles opposite to equal sides of a triangle are equal



Q.25 Find (a=b)

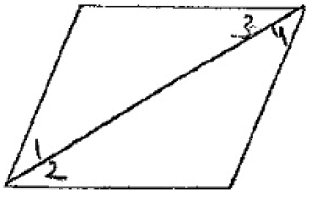
Q.26 AC=AE, AB=AD and $\angle BAD = \angle EAC$ Show that BC=DE

Q.27 If x^3+ax^2+bx+6 has (x-2) has factor and leaves 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 a exterior point such that RT=ST. Prove that PQ+PR>QS

Q.29 <1=<3, <2=<4, <3=4 Write the relation between <1 and <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.