Summative Test – 2

Mathematics - Class_IX

Time: 3 hr **Max. Marks: 80**

1. All questions are compulsory.
2. The questions paper consists of 34 questions divided into four sections A, B, C and D. Section A comprises of 10 questions of 1 mark each, Section B comprises of 8 questions of 2 marks each, Section C comprises of 10 questions of 3 marks each and Section D comprises of 6 questions of 4 marks each.
3. Question numbers 1 to 10 in section A are multiple choice questions where you have to select one correct option out of the given four.

Section A

1. Which of the following is an irrational number?
   a. 3.025025025 ...
   b. 2.1111111 ...
   c. 2.9213921322931233 ...
   d. 1.732222222222 ...

2. If an object moves a units along Y-axis from a point P(a, 0) to another point Q, then the co-ordinates of Q are ___.
   a. $(a, a)\ or\ (a, -a)$
   b. $(a, -a) or\ (-a, a)$
   c. $(2a, 0) or\ (-2a, 0)$
   d. $(a, a)\ or\ (-a, a)$

3. The quadratic polynomial whose zeroes are -3 and 4 is
   a. $x^2 - x - 12$
   b. $x^2 + x - 12$
   c. $x^2 + 3x - 4$
   d. $x^2 + 3x + 4$

4. The remainder when $-3x^3 + 7x^2 - 71$ is divided by $x + 4$ is
   a. 5
   b. 0
   c. -6
   d. 9

5. If a point is in the 2^{nd} quadrant, then the point will be of the form
   a. $(+, +)$
   b. $(+, -)$
   c. $(-, +)$
   d. $(-, -)$

6. A plane surface is a surface which lies evenly with the _____ on itself.
   a. Points
   b. curved lines
   c. straight lines
   d. area

7. The area of an isosceles right triangle is 84.5 cm^2. The length of equal side is
   a. 12 cm
   b. 13 cm
   c. 11 cm
   d. 14 cm

8. The area of a triangle is 24 cm^2.The length of the altitude to side 10 cm is
   a. 4.6 cm
   b. 4.4 cm
   c. 4.8 cm
   d. 4 cm

9. The measure of an angle that is 72° more than its supplement is
   a. 162°
   b. 126°
   c. 66°
   d. 81°

10. The angles of a triangle are in the ratio 3: 4: 8. The largest angle of the triangle is
   a. 96°
   b. 36°
   c. 48°
   d. 90°

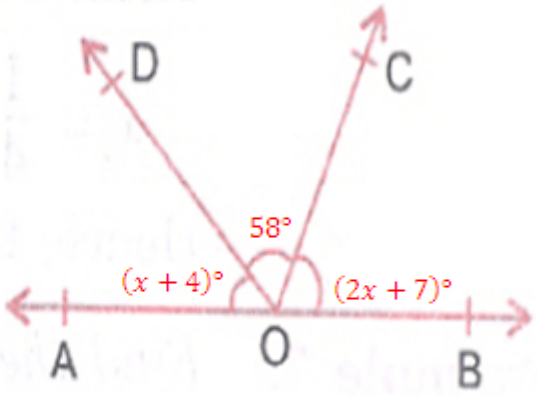
1. Find two irrational number between $\frac{1}{9}$ and $\frac{2}{9}$.
2. Find the product of $4\sqrt{27} + \sqrt{9}$ and $3\sqrt{3} - 2$

3. Write the following in expanded form:
   $(4z - 5t)^3$
4. Find the value of 603^3.

5. The base and height of a triangle are in the ratio 3: 5. If the area of the triangle is 270 cm^2. Find its base and height.

6. Find $(-3)^4 \times (-9)^2 \times (3)^{-2} \times 9^2$

7. AOB is a straight line. Find the value of x and hence find $\angle AOD$ *and* $\angle BOC$.



8. In $\Delta ABC, \angle A: \angle B: \angle C = 2: 3: 5$.
   i. Name the smallest side of ΔABC.
   ii. Name the largest side of ΔABC.

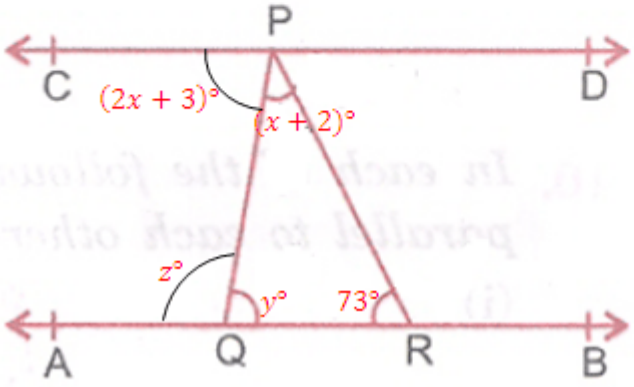
Section – C

1. Find a rational number whose decimal representation is $0.\overline{5}$.
2. Find three rational numbers between $\frac{1}{6}$ and $\frac{1}{5}$.
3. Factorise:
   $x^3 - 5x^2 - 2x + 24$

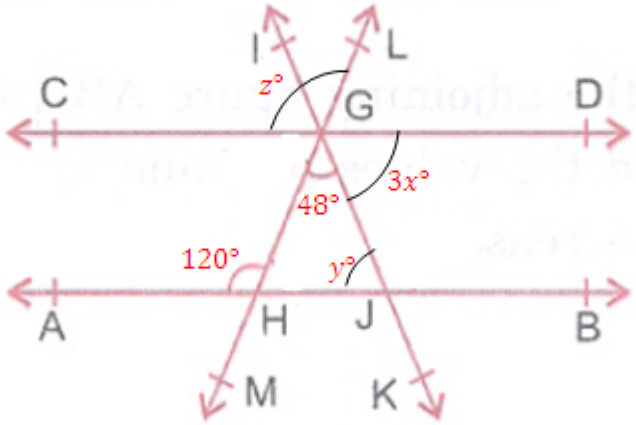
4. Two lines joining points $A(3,2), B(-2,-3)$ and $C(-2,1), D(3,-4)$ intersect each other at a point P. Find the coordinates of point, P using graph.

5. Find the area of a right angled triangle using heron's formula whose hypotenuse is of length 17 cm and one of the other two sides is of measure 15 cm.

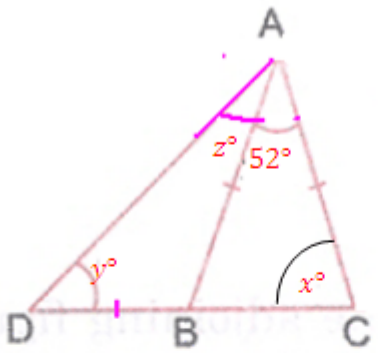
6. In the figure $AB \parallel CD$. Find the value of x, y and z.



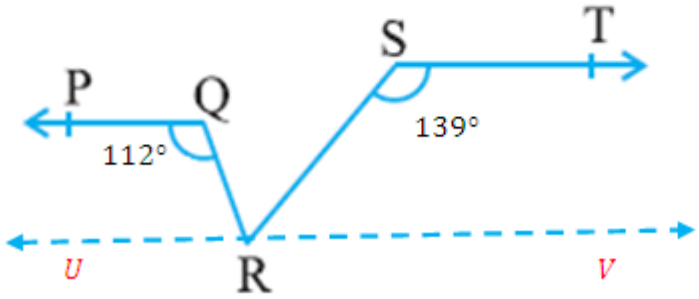
7. In the figure $AB \parallel CD$. Find the value of x, y and z.



8. In the figure $AB = AC = BD$. Find the values of x, y and z.



9. In the figure $PQ \parallel ST, \angle PQR = 112°, \angle RST = 139°$. Find $\angle QRS$.



10. If D is a point on side BC of ΔABC, prove that $AB + BC + AC > 2AC$.

Section – D

1. Express 5.8 geometrically.

2. A triangular board of perimeter 32 m has two sides of equal length and third side is of length $12\,m$. Find the cost of painting it at the rate of $Rs\ 150\ m^2$. $(Given\ \sqrt{2} = 1.41\ and\ \sqrt{3} = 1.73)$

3. If $\left(y^2 + \frac{1}{y^2}\right) = 27$, find the value of
   i. $\left(y - \frac{1}{y}\right)$
   ii. $\left(y + \frac{1}{y}\right)$

4. If two parallel lines are intersected by a transversal, then prove that the bisectors of a pair of alternate interior angles are parallel.

5. Prove that medians of an equilateral triangle are of equal length.

6. Evaluate the following
   i. 23.4×22.6
   ii. 109×91
   iii. 997^3