DELHI PUBLIC SCHOOL, JAMMU

ASSIGNMENT,HALF YEARLY EXAMINATION (2019-20)

Class: IX Sub: Maths

TOPICS:- Chapter 1- Number System. (10 marks)

Chapter 2- Polynomials. (15 marks)

Chapter 3- Coordinate Geometry. (5 marks)

Chapter 4- Lines and Angles. (20 marks)

Chapter 5- Triangles. (20 marks)

Chapter 6- Heron's Formula (10)

Section 1 (MCQ type)

Q1. Which of following numbers can be represented as non-terminating, repeating decimals? (1M)

(a) $\frac{39}{24}$ (b) $\frac{3}{16}$ (c) $\frac{3}{11}$ (d)$\frac{137}{25}$

Q2. The number $0.\overline{3}$ in the form $\frac{p}{q}$, where p and q are integers and q≠ 0, is (1M)

(a) $\frac{33}{100}$ (b) $\frac{3}{10}$ (c) $\frac{1}{3}$ (d) $\frac{3}{100}$

Q3. Which of the following is irrational? (1M)

(a) 0.15 (b) 0.01516 (c) $0.\overline{1516}$ (d) 0.501500150005..

Q4. An irrational number between 2 and 2.5 is (1M)

(a)$\sqrt{11}$ (b) $\sqrt{5}$ (c)$\sqrt{22.5}$ (d)$\sqrt{12.5}$

Q5. If Δ ABC ≅ Δ PQR and Δ ABC is not congruent to Δ RPQ then which of following is not true

(a) BC=PQ (b)AC=PR (c)AB=PQ (d)QR=BC (1M)

Q6. If 8^{x+1} =64, what is the value of 3^{2x+1} ? (1M)

(a) 1 (b)3 (c)9 (d)27

Q7. If $(2^{3)^2}$ = 4^x ,then 3^x = (1M)

(a) 3 (b) 6 (c)9 (d) 27

Q8. If x + $\frac{1}{x}$ =5, then $x^2 + \frac{1}{x^2}$ = (1M)

(a) 25 (b) 10 (c)23 (d) 27

Q9. If a+b+c =9 and ab+bc+ca = 23, then $a^2+b^2+c^2$ = (1M)

(a) 35 (b) 58 (c) 127 (d) none of these

Q10. $(x+y)^3 - (x-y)^3$ can be factorized as (1M)

(a)2y$(3x^2 + y^2)$ (b)2x$(3x^2 + y^2)$ (c)2y$(3y^2 + x^2)$ (d)2x$(x^2 + 3y^2)$

Q11. If x+2 is a factor of x^2 + mx + 14,then m = (1M)

(a) 7 (b) 2 (c) 9 (d) 14

Q12. If x+1 is a factor of the polynomial $2x^2$+kx, then k = (1M)

(a) -2 (b) -3 (c) 4 (d) 2

Q13. The ordinate of any point on x-axis is (1M)

(a) 0 (b) 1 (c) -1 (d) any number

Q14.The perpendicular distance of the point P (4,3) from y-axis is (1M)

(a) 4 (b) 3 (c) 5 (d) none of these

Q15.Side BC of a triangle ABC h has been produced to a point D such that ∠ACD = 120^0

.If $\angle B = \frac{1}{2}\angle A$, then $\angle A$= (1M)

(a) 80^0 (b) 75° (c) 60° (d) 90°

Q16. An exterior angle of a triangle is 108° and its interior opposite angles are in ratio 4:5. The Angles of the triangles are (1M)

(a) 48°, 60° ,72° (b) 50° ,60° ,70° (c) 52° ,56°, 72° (d)42°, 60°, 76°

Q17. In a Δ ABC, If AB=AC and BC produced to D such that ∠ACD = 100^0 then ∠A = (1M)

(a) 20° (b) 40° (c) 60° (d) 80°

Q18. The sides of triangles are 7cm, 9cm, 14cm. Its area is (1M)

(a) $12\sqrt{5}$ cm^2 (b) $12\sqrt{3}$ cm^2 (c) $24\sqrt{5}$ cm^2 (d) 63 cm^2

Q19. The sides of triangles are 50cm, 78cm, 112cm. Its smallest altitude is (1M)

(a) 20 cm (b) 30 cm (c) 40 cm (d) 50 cm

Q 20. If every side of a triangle is doubled, then increase in area of triangle, is (1M)

(a) $100\sqrt{5}\,\%$ (b) 200 % (c) 300 % (d) 400 %

Section B (Very Short Type)

Q21. Prove that sum of angles of triangle is 180^0 (2M)

Q22. Prove that when two lines intersect then vertically opposite angles are equal (2M)

Q23. Prove that in a triangle angle opposite to equal sides are equal. (2M)

Q24. AD is an altitude of Isosceles triangle ABC in which AB=AC. Show that AD bisects BC And AD bisects ∠ A. (2M)

Q25. Find area of triangle two sides of which are 18cm and 10cm and perimeter 42cm.(2M)

Q26. The sides of triangle are in ratio 13:14:15 and its perimeter is 84cm. Find area of Triangle. (2M)

Section C (Short Type)

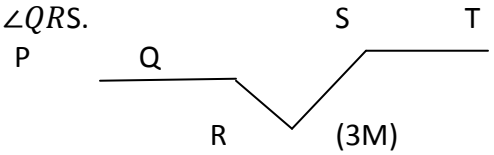
Q27. If of $x^2 + \frac{1}{x^2} = 79$. Find the value (3M)

(i) $x^3 + \frac{1}{x^3}$ ii) $x^3 - \frac{1}{x^3}$

Q28. If a + b = 10 & a b = 16, find $a^2 - a\,b + b^2$ and $a^2 + a\,b + b^2$. (3M)

Q29. Plot A(0,2), B(-2.5,0) and C(3.5,0) in graph and find area of triangle ABC. (3M)

Q30. .PQ‖ ST, $\angle PQR = 110^0$ and $\angle RST = 130^0$, find $\angle QR$S.

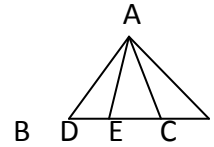


(3M)

Q31. $\angle X = 62^0$ and $\angle XYZ = 54^0$. IF YO and ZO are the bisectors of $\angle XYZ$ and $\angle XZY$ respectively of triangle XYZ, Find $\angle OZY$ and $\angle YOZ$. (3M)

Q32. Prove that in triangle ABC, AB+BC > AC. (3M)

Q33. In isosceles triangle ABC with AB=AC. D and E are points on BC such that BE=CD. Prove that AD= AE.



(3M)

Q34. A field is in shape of a trapezium whose parallel sides are 25m and 10m. The

Non parallel sides are 14m and 13m. find area of field. (3M)

Section D (Long Type)

Q35. Represent $\sqrt{6.5}$ *or* $\sqrt{9.3}$ on number line and give justification. (4M)

Q36. Expand (i) $(x^2 + y^2 - z^2).^2$ - $(x^2 - y^2 + z^2).^2$ ii) $\left(\frac{x}{y} + \frac{y}{z} + \frac{z}{x}\right).^2$ (4M)

Q37. Side QR of Δ PQR is produced to S. If bisector of $\angle PQR$ and $\angle PRS$ meet at T, then prove that $\angle QTR = \frac{1}{2}\angle QPR$. (4M)

Q38. Two sides AB and AC of Δ ABC are produced to P and Q respectively. The Bisectors of∠ PBC and∠QCB intersect at O, prove that ∠BOC =90^0 - $\frac{1}{2}\angle A$ (4M)

Q39. Prove that two triangles are congruent if two angles and included side of One triangle are equal to two angles and included side of other triangle. (4M)

Q40. In given figure AC=AE, AB=AD E
∠BAD = ∠EAC , show that BC=DE (4M)