ASSIGNMENT (NCJPS/GSA/X/MATHS/2011-12/03)

Chapter: - Quadratic Equations, A.P., Circles, Constructions

- 1. Find the value of p for which the difference between the roots of the equation $x^2 + px + 8 = 0$ is 2.
- 2. If one root of the quadratic equation $2x^2 + ax + 3 = 0$ is 1, find the other root and the value of a.
- 3. If x = 2 and x = 3 are the roots of the equation $3x^2 2kx + 2m = 0$, find the values k and m.
- 4. Find the solutions of $15x^2 + 3 = 17x$, when: (i) x is a rational number. (ii) x is a real number.
- 5. Solve for x : 2(2x+3/x-3) 25(x-3/2x+3) = 5; given that x is not = 3 or not= -3/2.
- 6. A shopkeeper buys a number of pens for Rs. 600. If he had bought 10 dozen more pens for the same amount, each dozen would have cost him Rs. 2 less. Find the number of pens bought by him.
- 7. Determine k so that k+2, 4k-6 and 3k-2 are the three consecutive terms of an AP.
- 8. Check if 50 is a term of the AP 4, 7, 10, 13, ... or not. If yes, find which term it is.
- If 5 times the 5th term of an AP is equal to 7 times the 7th term, then prove that the 12th term is zero.
- 10. How many terms of the AP 9, 17, 25, ... must be taken to give the sum 636 ?
- 11. An AP consists of 21 terms. The sum of the three terms in the middle is 129 and of the last three is 237.Find AP.
- 12. The sum of n terms of a sequence is $3n^2 + 4n$. Find the nth term and show that the sequence is an AP.
- 13. O is the centre of a circle. PA and PB are tangents to the circle from a point P. Prove that (i) PAOB is a cyclic quadrilateral (ii) PO is the bisector of angle APB.
- 14. A circle touches all the four sides of a quadrilateral ABCD whose side AB = 6 cm, BC = 7 cm and CD = 4 cm. Find AD.
- 15. If tangents AP and BP from a point P to a circle with centre O, are inclined to each other at an angle of 80⁰ then find angle POA.
- 16. Two circles of radii 10cm and 8cm are concentric. Calculate the length of a chord of the larger circle which touches the smaller circle.
- 17. PQ and QT are tangents to a circle with centre O. If OPQ is an isosceles triangle, then find angle PQT.
- 18. Draw a line segment of length 7 cm and divide it in the ratio 2: 3 internally. Measure the two parts.P.T.O.

- 19. Construct a triangle with sides 5 cm, 6 cm and 7 cm and then construct another triangle similar to it whose sides are 2 / 3 of the corresponding sides of the first triangle.
- 20. Draw a circle of radius 4 cm. Construct two tangents to it inclined at an angle of 45⁰ to each other.
- 21. Draw a circle of diameter 12 cm. From a point 10 cm away from its centre construct a pair of tangents to the circle. Measure the lengths of the tangent segment.

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