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.

9. If 5 times the 5\(^{th}\) term of an AP is equal to 7 times the 7\(^{th}\) term, then prove that the 12\(^{th}\) 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 80\(^{0}\) 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 $\frac{2}{3}$ 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 $45^0$ 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.

---------------------------------------------------------------------Best of Luck---------------------------------------------------------------------