

DELHI PUBLIC SCHOOL, JAMMU
ASSIGNMENT (2018-2019)

Class: X

Subject: Mathematics

**CHAPTERS: POLYNOMIAL ,TRIGONOMETRY,REAL NUMBER,SIMILAR
TRIANGLES,LINEAR EQUATIONS,APPLICATIONS TO TRIGONOMETRY.**

1. State and prove B.P.T .
2. Prove that $\sqrt{3}$ is irrational number.
3. State and prove P.G.T.
4. Prove that $\sqrt{5} + \sqrt{3}$ is irrational no.
5. Find the largest no which divides 245 and 1029 leaving remainder 5 in each case.
6. If the area of two similar triangles are equal prove that they are congruent.
7. Use Euclid division algorithm. find HCF of 4052 and 12576.
8. Find p and q if p and q are zeroes of the quadratic polynomial $x^2 + px + q$.
9. Find a cubic polynomial with the sum, sum of the product of its zeroes taken two at a time, and product of its zeroes as 4,1,-6 respectively.
10. If the sum of the squares of zeroes of the polynomial $6x^2 + x + K$ is $\frac{25}{36}$, find the value of k.
11. If α and β be two zeroes of the quadratic polynomial $p(x) = 2x^2 - 3x + 7$, evaluate
 - a. $\frac{1}{\alpha} + \frac{1}{\beta}$
 - b. $\alpha^3 + \beta^3$
 - c. $\frac{1}{2\alpha-3} + \frac{1}{2\beta-3}$
12. Solve $2x+3y=11$, $2x-4y=-24$. Find m for which $y=mx+3$.
13. Find the zeroes of the polynomial $f(x) = 4\sqrt{3}x^2 + 5x - 2\sqrt{3}$ and verify the relation between the zeroes and coefficient.
14. If $\sin A = \frac{m}{n}$, find the value of $\frac{\tan A + 4}{4\cot A + 1}$.
15. If $x = r \sin A \cos C$, $y = r \sin A \sin C$ and $z = r \cos A$, prove that $r^2 = x^2 + y^2 + z^2$.
16. Prove that $(1 + \cot A - \operatorname{cosec} A)(1 + \tan A + \sec A) = 2$
17. If $\sec Q + \tan Q = p$, prove that $\sin Q = \frac{p^2 - 1}{p^2 + 1}$
18. From the top of 7m high building, the angle of elevation of the top of cable tower is 60° and the angle of depression of its foot is 45° . Find height of tower.
19. If α and β are zeroes of the quadratic polynomial $x^2 - 6x + a$, find the value of a if $3\alpha + 2\beta = 20$.
20. The difference between two numbers is 26 and one number is three times other. Find them.