

DELHI PUBLIC SCHOOL, JAMMU

ASSIGNMENT FOR PERIODIC TEST-II HALF-YEARLY

(SESSION 2017-18)

CLASS-X

SUBJECT-MATHS

- Q1) Explain why $5 \times 7 \times 9 + 7$ is a composite number
- Q2) If the zeros of $x^2 - px - q$ are reciprocal of each other, then find the value of q .
- Q3) At what point will the line $x - y = 8$
- Q4) Find the value of x , if $\cos(4x - 10) = 0$.
- Q5) If 8 is a root of equation $x^2 - 10x + k = 0$, find k .
- Q6) Find the median of 5, 7, 10, 3, 8, 9, 14, 17, 23..

SECTION---- B

- Q7) ABC is an isosceles triangle, right angled at C. Prove that $AB^2 = 2BC^2$
- Q8) Find two no.s whose sum is 18 and difference is 6.
- Q9) Solve x and y $49x + 51y = 499$, $51x + 49y = 501$.
- Q10) Show that $(\sin^2 45 - \tan^2 45)^2 + 3(\sin^2 90 + \tan^2 30) = 17/4$
- Q11) A tower is 20m high and its shadow on ground is $20\sqrt{3}$ m long find sun's altitude.
- Q12) Find the largest number which divides 70 and 125 leaving remainder 5 and 8 respectively.

SECTION ----C

- Q13) State and prove Thales' theorem
- Q14) If $\tan(A+B) = \sqrt{3}$, $\tan(A-B) = 1/\sqrt{3}$ find A and B
- Q15) If we add 1 to the numerator and subtract 1 from the denominator, a fraction reduces to 1. It becomes $1/2$ if we only add 1 to the denominator find the fraction.
- Q16) Find a and b of the linear equation which have an infinite no. of solutions. $2x + 3y = 7$, $(a-b)x + (a+b)y = 3a+b-2$.

Q17) Find all the zeros of $3x^4+6x^3-2x^2-10x-5$, if two of its zeros are $\sqrt{5}/\sqrt{3}$ and $-\sqrt{5}/\sqrt{3}$

Q18) Prove that $\sqrt{5}$ is irrational.

Q19) The angle of elevation of the top of a tower from two distinct points S and T from its foot are complementary. Prove that the height of the tower \sqrt{ST} .

Q20) Prove that $\sqrt{5}$ is irrational and hence show that $3+\sqrt{5}$ are also irrational.

Q21) If the polynomial $x^4-6x^3+16x^2-25x+10$ is divided by another polynomial x^2-2x+k , the remainder comes out to be $x+a$. Find the values of k and a .

Q22) Solve graphically the pair of linear equations

$$X - y = -1 \text{ and } 2x + y - 10 = 0$$

Also find the area of the region bounded by these lines and x-axis.

Section -----D

Q23) In an equilateral triangle ABC, D is a point on side BC such that $3BD = BC$. Prove that $9AD^2 = 7AB^2$.

Q24) Two water taps together can fill a tank in $2\frac{11}{12}$ hrs. The tap of the smaller diameter takes 2 hours more than the larger one to fill the tank separately. Find the time in which each tap can separately fill the tank.

Q25) The angle of elevation of a jet plane from a point A on the ground is 60° . After a flight of 30 seconds, the angle of elevation changes to 30° . If the jet plane is flying at a constant height of $3000\sqrt{3}$ m, find the speed of the jet plane.

Q26) If $\tan Q + \sin Q = m$ and $\tan Q - \sin Q = n$, show that $m^2 - n^2 = 4\sqrt{mn}$.

Q27) If the areas of two similar triangles are equal, prove that they are congruent.

Q28) If the roots of quadratic equation $(b-c)x^2 + (c-a)x + a-b = 0$ are equal, then prove that $2b = a+c$.

Q29) A tree breaks due to storm and the broken part bends so that the top of the tree touches the ground making an angle of 45° with it. The distance between the foot of the tree to the point where the top touches the ground is 10 m. Find the height of the tree.

Q30) IF the median is 28.5, find the value of x and y.

class interval	0-10	10-20	20-30	30-40	40-50	50-60	Total
Frequency	5	x	20	15	y	5	60

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