DELHI PUBLIC SCHOOL, JAMMU

ASSIGNMENT (2017-2018)

IST PEROIDIC TEST

SUBJECT MATH CLASS X

1. Show that one and only one out if n, n+2, n+4 is divisible by 3, Where n is any +ve integer
2. The Largest number which decides 546 and 764 leaving remainder 6 and 8 respectively.
3. Show that (5- $\sqrt[2]{3}$) is Irrational No.
4. Use Euclid's algorithm to find the HCF of 408 and 1032.
5. Find the quadratic polynomial the sum of whose zero's is $\sqrt{2}\,and$ their product is -12. Hence find the zero's of the polynomial
6. It being given that 1 is a zero of the polynomial ($7x-x^3-6$) find the zeros
7. Divide ($6+19x+x^2-6x^3$) by ($2+5x-3x^2$)
8. Draw the graph of x^2-3x-4
9. Find all the zeros of the polynomial ($2x^4-11x^3+7x^2+13x-7$) it being that two of its zeros are ($3+\sqrt{2}$) and ($3-\sqrt{2}$)
10. Solve for x and y $\frac{bx}{a} - \frac{ay}{b}$+a+b =0

    bx- ay+2ab = 0
11. Solve for a and y $\frac{a}{x} - \frac{b}{y} = 0, \frac{ab^2}{b} + \frac{a^2b}{b}$=$a^2+b^2$
12. A two digit number is such that the product of its digit is 14. If 45 is added to the number the digits interchange their places find the number
13. 8 men and 12 boys can finish a piece of work is 5 days while 6 men and 8 boys can finish it is 7 days find the time taken by 1 man alone and that by 1 boy alone to finish the work.
14. 90% and 97% pure acid solution are mixed to obtain 21 liters of 95% pure acid solution find the quality of each type of acid to be mixed to form the mixture.
15. Find the value of m and n which the following system of linear equation has infinity many solution

    3x+4y = 12

    (m+n)x + 2(m-n)y = 5m-1

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1. If ABCD is a cycle quadrilateral and A, B, C, D are its interior angle then prove that

   1. $tan\frac{A}{2} + tan\frac{B}{2} = cot\frac{C}{2} + cot\frac{D}{2}$

2. Prove that $\frac{Sin\theta}{cot\theta+cosec\theta}$ - 2 + $\frac{sin\,\theta}{cot\,\theta-cosec\,\theta}$
3. If cosec θ = x + $\frac{1}{4x}$, Prove that cosec θ + cot θ = 2x or $\frac{1}{2x}$
4. If cosec θ – sin θ = a and sec $\theta - cot\,\theta = b$, Prove that $^{a2b2}(^{a2}+^{b2}+3) = 1$
5. If Tan A = q tan B and Sin A = P Sin B, Prove that Cos^2 A = $\frac{P^2-1}{q^2-1}$
6. Prove that sec4 θ (1- sin4 θ) – 2 tan2 θ = 1
7. Prove that 2 (sin6 θ + cos6 θ) – 3(sin4 θ + cos4 θ) +1 = 0
8. Prove that $\frac{tan\,\theta}{1-cot\,\theta} + \frac{cot\,\theta}{1-tan\,\theta}$ = 1 + tan θ + cot θ
9. If cot θ = $\frac{3}{4}$, Prove that $\sqrt{\frac{sec\,\theta-cosec\,\theta}{sec\,\theta+cosec\,\theta}} = \frac{1}{\sqrt{7}}$
10. For which value of a do the pair of linear equations ax + y = a^2 and x + ay = 1

    Solve for x and y

    a. Unique solution
    b. Infinitely many solutions
    c. No solution

11. Solve for x and y : mx – ny = m2 + n2

    i. x – y = 2n

12. Find the zeros of the polynomial 2s^2 – (1+$\sqrt[2]{2}$)s +$\sqrt{2}$ and verify the relation between the zeros and the coefficients.
13. If one zero of the polynomials (a2 +9) x2 +13x +6a is reciprocal of the other find the value of a
14. If n is an odd positive integer show that (n2-1) is divisible by 8
15. Find the HCF of 612 and 1314 using prime factorization and Euclid's algorithm.