**INDIA INTERNATIONAL SCHOOL – MANGAF**

**HOLIDAY HOMEWORK (2018)**

**SUBJECT: MATHEMATICS**

REAL NUMBERS

1. Without actually performing the long division, state whether the following rational numbers will have a terminating or a non-terminating repeating decimal expansion.

(i) (v) If , find the value of m and n

2. If the LCM of (p,q) = 6 and HCF of (p,q) = 2Then find 

3. Find LCM and HCF of the following by prime factorization method

(i) 180,144 and 192 (ii) 45 and 105

5. Use euclid’s division algorithm to find the HCF of 21658 and 8624.

6. Find the largest number that will divide 699,572,and 445 leaving remainders 6,5 and 4 respectively.

7. Show that any positive odd integer is of the form 8q+1, 8q+3, 8q+5 or 8q+7 where q is some integer.

8. Prove that one of every three consecutive positive integers is divisible by 3

. 9. Prove that  is an irrational.

10. Use Euclid’s division lemma t is of the o show that the cube of any positive integer is of the form 9m, 9m+1 or 9m+8.

11. The LCM of 2 numbers is 14 times their HCF. The sum of LCM and HCF is 600. If one number is 280, then find the other number.

POLYNOMIALS

1. Find the zeroes of the polynomial (iii) and verify the relation between the zeroes and coefficients of the polynomial.
2. Using division algorithm,find the quotient and remainder on dividing

F(x)= by g(x) = 

1. If  are the zeroes of the polynomial , such that ,find the value of k.
2. If one zero of the polynomial  is a reciprocal of the other,find the value of a.
3. Find the zeroes of the polynomial if two of its zeroes are equal in magnitude but opposite in sign.
4. Find all zeroes of the polynomial,if you know that two of its zeroes are .
5. If is exactly divisible by , find a and b.
6. If , are zeroes of the polynomial p(x) = 3x2 – 4x – 7 then form a quadratic polynomial whose zeroes are and

Pair ofLinear Equations in Two variables

1. Check graphically whether the pair of equations 2x+3y =8 and x+4y = 9 is consistent.if so, solve them graphically.

2. Draw the graphs of the given linear equations.find the vertices of the triangle so obtained.Also find the area of the triangle.

4x – 3y = 0, 2x + y = 10 and y = 0.

3. Solve , x + y = 2ab. (ii) 6(ax+by)=3a+2b, 6(bx-ay)=3b-2a (iii)  (iv) 

4. the sum of a two digit number and the number obtained by interchanging its digits is 110.

If 10 is subtracted from the first number ,the new number is 4 more than 5 times the sum

Of the digits in the first number.find the first number.

5. A person can row 4 km upstream and 16 km downstream in one hour 50 minutes .He can

Row 20 km downstream and 20 km upstream in 4 hours10 minutes.find the speed of the

Person in still water and the speed of the current.

Statistics , Similar triangles and Trignometry

1. Make the cumulative frequency table and find the median class of the following frequency distribution

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Class interval | 0 - 100 | 100 – 200 | 200 – 300 | 300– 400 | 400 – 500 | 500 – 600 |
| Frequency | 8 | 10 | 12 | 22 | 30 | 18 |

2. Determine the value of x such that 2 cosec230 + x sin260 - tan230 = 10

3. The median of the following data is 525. Find the value of x and y of the total frequency is 100

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class | 0 – 100 | 100-200 | 200-300 | 300-400 | 400-500 | 500-600 | 600-700 | 700-800 | 800-900 | 900-1000 |
| frequency | 2 | 5 | x | 12 | 17 | 20 | y | 9 | 7 | 4 |

4. Find the mean , median and mode

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Class interval | 0 – 10 | 10 – 20 | 20 – 30 | 30 – 40 | 40 – 50 |
| Frequency | 10 | 18 | 40 | 20 | 12 |

5 Using the formula tan2A = , find the value of tan60 , it being given that tan 30 =

6. Evaluate the following (i) sin60cos30 + cos60sin30

(ii) cos45cos30 + sin45 sin30

(iii) + - 2cos245 - sin20

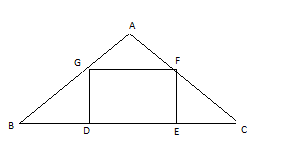
7. If sinA = , find the value of all trigonometric ratios of A.

8. Prove that the ratio of the perimeter of two similar triangle is the same as the ratio of their corresponding sides

9. Diagonal BD of a quadrilateral ABCD bisects both <B and <D prove that =

In the given figure DEFG is a square and <BAC = 90 . Prove that

(I) (II) (III) (IV) =BD x EC

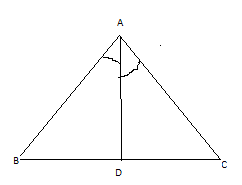


10. Prove that the line segments joining the midpoints of the sides of the triangle form four triangles , each of which is similar to the original triangle.

In a AD is the bisector of <A.

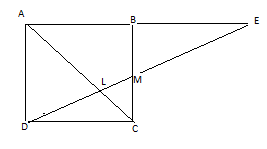
(i) if AB =10 cm , AC =14 cm and BC = 6cm find BD and DC

(ii) If AB = 5.6 cm , AC =4 cm and DC = 3 cm find BC

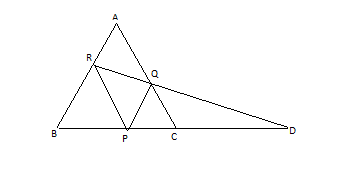


11. In figur , M is mid-point of side CD of a parallelogram ABCD. The line BM is drawn intersecting AC at L and AD

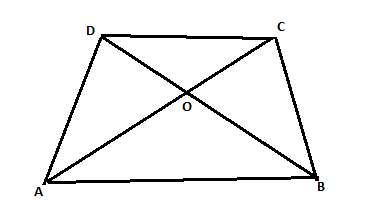
Produced at E . Prove that EL =2 BL



12. In the given figure PQ||BA , PR || CA . If PD =12cm . Find BD x CD



13. In the given figure if AB || DC find the value of x , OA = x + 5 , OC = x + 3 , OD = x – 2 , OB = x – 1



14. If = m and = n , show that ( m2 + n2) cos2B = n2

15. If cosecA + cot A = b , then prove that cos A =

16. Draw a more than type ogive and hence obtain median from the curve

|  |  |
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| Apples | c.f |
| More than 50  More than 60  More than 70  More than 80  More than 90  More than 100  More than 110 | 160  55  39  29  10  6  2 |

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