ASSIGNMENT: Real Numbers CH 1

A. Using Euclid Division Lemma find the HCF of the following pairs

1) 288 & 616
2) 90 & 168
3) 315 & 728
4) 180 & 504
5) 405 & 2520
6) 504 & 1188
7) 960 & 1575
8) 819 & 280
9) 195 & 945
10) 120 & 225
11) 231& 1064
12) 420 & 396
13) 1716 & 2717
14) 84,616 & 1792
15) 315, 180&2772

B. Express as Product of Primes

1) 1232
2) 1122
3) 8640
4) 11340
5) 4752
6) 4158
7) 2275
8) 10368
9) 2772
10) 5166
11) 1638
12) 10868

C. Find L.C.M and H.C.F of the pairs of numbers and verify that L.C.M × H.C.F= Product of numbers

1) 45 & 165
2) 132 & 252
3) 42 &126
4) 72 & 124
5) 114 & 198
6) 210 & 615
7) 215 & 360
8) 60 & 660
9) 216 & 336

D. Find L.C.M and H.C.F of

1) 24 , 36 & 40
2) 30 , 72 & 432

E. The HCF of two numbers is 23 and their LCM is 1449. If one of the number is 161 find the other number

F. Show that (i) 6^n (ii) 14^n can never end with zero

G. Find the largest number which divides 248 and 1032 leaving remainder 8 in each case.Ans24

H. Find the largest number which divides 546 and 764 leaving remainders 6 and 8 respectively

Ans. 108

I. Two tanks contain 504 and 735 liters of milk respectively. Find the maximum capacity of a container which can measure the milk of either tank an exactly number of times.

J. Express as a rational number in simplest form

1) $0.\bar{6}$
2) $1.\bar{5}$
3) $0.\overline{15}$
4) $3.\overline{18}$
5) $0.\overline{111}$
6) $2.\overline{132}$
7) $0.1\bar{6}$
8) $1.2\overline{12}$
9) $4.52\bar{1}$

K. Without actually dividing find whether the rational number is a terminating decimal or not.

1) $\frac{24}{125}$
2) $\frac{17}{320}$
3) $\frac{171}{800}$
4) $\frac{15}{1600}$
5) $\frac{19}{3125}$
6) $\frac{11}{2^3 . 3}$
7) $\frac{129}{2^2 .5^7 .7}$
8) $\frac{77}{210}$

L. Explain why (i)15×14×13×11+11 (ii) 2×3×4×5×6×7+123 is composite

M. By observation tell the number is Irrational or not

1) 2.34534627868268….
2) 8.78686867878…
3) $2.\overline{132676768532114697097}$
4) 2.309048957995988687
5) 3.28903464849…..
6) 3.256256256

N. Prove that $\sqrt{2}$ is a irrational number.

O. Prove that $\sqrt{3}$ is a irrational number.

P. Prove that $2\sqrt{2}$ is a irrational number.

Q. Prove that $2 + \sqrt{3}$ is a irrational number.

R. Prove that $5 - 2\sqrt{3}$ is a irrational number.

S. Prove that $\sqrt{3} + \sqrt{2}$ is a irrational number.

T. Prove that $\frac{1}{\sqrt{3}}$ is a irrational number.

❖ SUMMARY

- **LEMMA** is a proven statement used to prove other statements
- **Euclid Division lemma** says that every number **a = b q + r where $0 \leq r < b$**
  FUNDAMENTAL THEOREM OF ARITHMETIC says that every composite number can be expressed as product of primes and this representation is unique irrespective of the order in which they appear.
- **Theorem 3**: If p divides q^2 then p must divide q where p and q are prime numbers.
- Terminating decimal is when denominator is of the form $2^n . 5^m$