Let ‘a’ and ‘b’ be two integers.

Then,

GCD (a, b) \* LCM (a, b) = a \* b

How?

This comes from the fact that **a + b = min (a, b) + max (a, b)**

Writing the prime factorization of a and b,

a = pe1qe2se3…..

b = pf1qf2rf3sf4…….

Now, their LCM and GCD can be written as product of the common prime factors, with the exponents in LCM and GCD being the max and min of the corresponding two.

LCM (a, b) = pmax (e1, f1)qmax (e2, f2)rf3 smax (e3, f4)

GCD (a, b) = pmin (e1, f1)qmin (e2, f2)smin (e3, f4)

Example:

a = 6, b = 14

42 = 21 \* 31 \* 71

56 = 23 \* 71

LCM (42, 56) = 23 \* 31 \* 71 = 168

GCD (42, 56) = 21 \* 71 = 14

14 \* 168 = 42 \* 56