

Find the greatest number which divides 2011 and 2623 leaving remainders 9 and 5 respectively.

Solution:

$$2011 - 9 = 2002$$

$$2623 - 5 = 2618$$

The greatest number is the HCF of 2002 and 2618

By Euclid's division algorithm

$$2618 = 2002 \times 1 + 616$$

$$2002 = 616 \times 3 + 154$$

$$616 = 154 \times 4 + 0$$

$$\text{HCF} = 154$$

$$\text{Required number} = 154$$