

1. For any two positive integers n and m , we have proved the following. If a is the smallest positive element of

$$A = \{\alpha n + \beta m : \text{ where } \alpha \text{ and } \beta \text{ are integers}\}$$

, then a is a divisor of every element in A . Now prove that a is the greatest common factor of n and m .

2. Let n be a natural number such that $\frac{1}{n}$ is a terminating decimal. What can we state about n ?
3. Compute the number of factors of a number, given its prime-factorization.