

Name :- Faizan Nadeem
Roll no :- 002
Department :- BS-SE

Question no. 2

Use the Euclidean algorithm
to find $\gcd(1529, 14039)$.

Solution :-

$$14039 = 1529 \times 9 + 278$$

$$1529 = 278 \times 5 + 139$$

$$278 = 139 \times 2$$

↓
Hence the last non-zero
remainder is 139 : $\gcd(1529, 14039)$
 $= 139$.

Q no. 1

Solution...

$$a_0 = -1$$

$$a_1 = 0$$

$$a_2 = 2a_{2-1} + a_{2-2}^2 \Rightarrow 2a_1 + a_0^2 \Rightarrow 2(0) + (-1)^2 = 1$$

$$a_3 = 3a_{3-1} + a_{3-2}^2 \Rightarrow 3a_2 + a_1^2 \Rightarrow 3(1) + (0)^2 = 3$$

$$a_4 = 4a_{4-1} + a_{4-2}^2 \Rightarrow 4a_3 + a_2^2 \Rightarrow 4(3) + (1)^2 = 13$$

$$a_5 = 5a_{5-1} + a_{5-2}^2 \Rightarrow 5a_4 + a_3^2 \Rightarrow 5(13) + (3)^2 = 74$$

$$a_6 = 6a_{6-1} + a_{6-2}^2 \Rightarrow 6a_5 + a_4^2 \Rightarrow 6(74) + (13)^2 = 613$$

$$= \{-1, 0, 1, 3, 13, 74, 613, \dots\}$$

Q no. 3

Solution

967:-

967 is a prime number
and can't be factorised

The only factors of 967 are

1 and 967