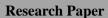
Journal of Research in Applied Mathematics

Volume 8 ~ Issue 6 (2022) pp: 53-54

ISSN(Online): 2394-0743 ISSN (Print): 2394-0735

www.questjournals.org





Remainder Prime Test

NAZEER AHMAD

Received 02 June, 2022; Revised 12 June, 2022; Accepted 15 June, 2022 © The author(s) 2022. Published with open access at www.questjournals.org

INTRODUCTION

It is a method of identifying any number is prime or not. This method is based on prime number equation i.e. HCF [n, (n-1)!]=1; where 'n' belongs to natural number.

PROCEDURE

Steps for testing prime number:-

```
STEP 1: take any number (say n)
```

STEP 2: divide (n-1)x(n-2) by n

STEP 3: if remainder (r_1) is not zero then multiply (r_1) with (n-3)

STEP 4: divide $(r_1)x(n-3)$ by n

STEP 5: if still remainder (r_2) is not zero then multiply (r_2) with (n-4)

STEP 6: divide $(r_2)x(n-4)$ by n

THIS PROCESS WILL GO ON UNTILL:-

- · Remainder becomes 0, or
- Nothing remains to multiply with last remainder.

Example 1 (Number =6)

```
(5 \times 4 = 20) \div 6 \text{ Remainder } 2
```

 $(2 \times 3 = 6) \div 6 \text{ Remainder } 0$

Hence, 6 ≠ Prime

Example 2 (Number = 7)

 $(6 \times 5 = 30) \div 7 \text{ Remainder } 2$

 $(2 \times 4 = 8) \div 7$ Remainder 1

 $(1 \times 3 = 3) \div 7$ Remainder 3

 $(3 \times 2 = 6) \div 7 \text{ Remainder } 6$

 $(6 \times 1 = 6) \div 7 \text{ Remainder } 6$

Hence 7 = Prime

Example 3 (Number = 11)

```
(10 \times 9 = 90) \div 11 Remainder 2

(2 \times 8 = 16) \div 11 Remainder 5

(5 \times 7 = 35) \div 11 Remainder 2

(2 \times 6 = 12) \div 11 Remainder 1

(1 \times 5 = 5) \div 11 Remainder 5

(5 \times 4 = 20) \div 11 Remainder 9

(9 \times 3 = 27) \div 11 Remainder 5

(5 \times 2 = 10) \div 11 Remainder 10

(10 \times 1 = 10) \div 11 Remainder 10

Hence 11 = Prime
```

Example 4 (Number = 8)

```
(7 \times 6 = 42) \div 8 Remainder 2
(2 x 5 =10) ÷8 Remainder 2
(2 x 4 =8) ÷8 Remainder 0
```

Hence 8 ≠ Prime

CONCLUSION

After using remainder prime test:-

- If remainder =0, then it is not prime number.
- o If remainder ≠ 0, then it is prime number.

EXCEPTION

This remainder prime test is not applicable on number 4 only.