Playing With Numbers Ex 5.2 Q9

Answer :

Sum of the digits of the number 51439786 = 5 + 1 + 4 + 3 + 9 + 7 + 8 + 6 = 43The remainder of 51439786, when divided by 3, is the same as the remainder when the sum of the digits is divided 3.When 43 is divided by 3, remainder is 1.Therefore, when 51439786 is divided by 3, remainder will be 1.

Playing With Numbers Ex 5.2 Q10

Answer :

$798 = \text{A multiple of } 11 + (\text{Sum of its digits at odd places} - \text{Sum of its digits at even places})$
$798 = \text{A multiple of } 11 + (7 + 8 - 9)$
$798 = \text{A multiple of } 11 + (15 - 9)$
$798 = \text{A multiple of } 11 + 6$
Therefore, the remainder is 6.

Playing With Numbers Ex 5.2 Q11

Answer :

$928174653 = \text{A multiple of } 11 + (\text{Sum of its digits at odd places} - \text{Sum of its digits at even places})$
$928174653 = \text{A multiple of } 11 + \{(9 + 8 + 7 + 6 + 3) - (2 + 1 + 4 + 5)\}$
$928174653 = \text{A multiple of } 11 + (33 - 12)$
$928174653 = \text{A multiple of } 11 + 21$
$928174653 = \text{A multiple of } 11 + (11 \times 1 + 10)$
$928174653 = \text{A multiple of } 11 + 10$
Therefore, the remainder is 10.

Playing With Numbers Ex 5.2 Q12

Answer :

(i) 10
Every number with the structure $(4n + 2)$ is an example of a number that is divisible by 2 but not by 4.

(ii) 15
Every number with the structure $(6n + 3)$ is an example of a number that is divisible by 3 but not by 6.

(iii) 28
Every number with the structure $(8n + 4)$ is an example of a number that is divisible by 4 but not by 8.

(iv) 8
Every number with the structure $(32n + 8)$, $(32n + 16)$ or $(32n + 24)$ is an example of a number that is divisible by 4 and 8 but not by 32.

Playing With Numbers Ex 5.2 Q13

Answer :

(i) False
Every number with the structures $(9n + 3)$ or $(9n + 6)$ is divisible by 3 but not by 9. Example: 3, 6, 12 etc.
(ii) True
(iii) False
Every number with the structure $(8n + 4)$ is divisible by 4 but not by 8. Example: 4, 12, 20 etc.
(iv) True
(v) False
Example: 24 is divisible by both 3 and 6 but it is not divisible by 18.
(vi) True
(vii) False
Example: 5 divides 10, which is a sum of 3 and 7. However, it neither divides 3 nor 7.
(viii) True
(ix) False
Example: 4 and 9 are co-prime numbers but both are composite numbers too.
(x) True

********** END **********