Exercise 2B

(i) 4334 is divisible by 11.

Sum of the digits at odd places = (4 + 3) = 7
Sum of the digits at even places = (3 + 4) = 7
Difference of the two sums = (7 − 7) = 0, which is divisible by 11.

(ii) 83721 is divisible by 11.
Sum of the digits at odd places = (1 + 7 + 8) = 16
Sum of the digits at even places = (2 + 3) = 5
Difference of the two sums = (16 − 5) = 11, which is divisible by 11.

(iii) 66311 is not divisible by 11.

Sum of the digits at odd places = (1 + 3 + 6) = 10
Sum of the digits at even places = (1 + 6) = 7
Difference of the two sums = (10 − 7) = 3, which is not divisible by 11.

(iv) 137269 is divisible by 11.

Sum of the digits at odd places = (9 + 2 + 3) = 14
Sum of the digits at even places = (6 + 7 + 1) = 14
Difference of the two sums = (14 − 14) = 0, which is a divisible by 11.

(v) 901351 is divisible by 11.

Sum of the digits at odd places = (0 + 3 + 1) = 4
Sum of the digits at even places = (9 + 1 + 5) = 15
Difference of the two sums = (4 − 15) = −11, which is divisible by 11.

(vi) 8790322 is not divisible by 11.

Sum of the digits at odd places = (2 + 3 + 9 + 8) = 22
Sum of the digits at even places = (2 + 0 + 7) = 9
Difference of the two sums = (22 − 9) = 13, which is not divisible by 11.

Q11

Answer:

(i) 2724

Here, $2 + 7 + * + 4 = 13 + *$ should be a multiple of 3.

To be divisible by 3, the least value of * should be 2, i.e., $13 + 2 = 15$, which is a multiple of 3.

∴ * = 2

(ii) 53046

Here, $5 + 3 + * + 4 + 6 = 18 + *$ should be a multiple of 3.

As 18 is divisible by 3, the least value of * should be 0, i.e., $18 + 0 = 18$.

∴ * = 0

(iii) 81711

Here, $8 + * + 7 + 1 + 1 = 17 + *$ should be a multiple of 3.

To be divisible by 3, the least value of * should be 1, i.e., $17 + 1 = 18$, which is a multiple of 3.

∴ * = 1

(iv) 62235

Here, $6 + 2 + * + 3 + 5 = 16 + *$ should be a multiple of 3.

To be divisible by 3, the least value of * should be 2, i.e., $16 + 2 = 18$, which is a multiple of 3.

∴ * = 2

(v) 234117

Here, $2 + 3 + 4 + * + 1 + 7 = 17 + *$ should be a multiple of 3.

To be divisible by 3, the least value of * should be 1, i.e., $17 + 1 = 18$, which is a multiple of 3.

∴ * = 1

(vi) 621054

Here, $6 + * + 1 + 0 + 5 + 4 = 16 + *$ should be a multiple of 3.

To be divisible by 3, the least value of * should be 2, i.e., $16 + 2 = 18$, which is a multiple of 3.

∴ * = 2

Q12

Answer:

(i) 6525

Here, $6 + 5 + * + 5 = 16 + *$ should be a multiple of 9.

To be divisible by 9, the least value of * should be 2, i.e., $16 + 2 = 18$, which is a multiple of 9.

∴ * = 2

(ii) 27135

Here, $2 + * + 1 + 3 + 5 = 11 + *$ should be a multiple of 9.

To be divisible by 9, the least value of * should be 7, i.e., $11 + 7 = 18$, which is a multiple of 9.

∴ * = 7

(iii) 67023

Here, $6 + * + 7 + 0 + 2 = 15 + *$ should be a multiple of 9.

To be divisible by 9, the least value of * should be 3, i.e., $15 + 3 = 18$, which is a multiple of 9.

∴ * = 3

(iv) 91467

Here, $9 + 1 + * + 6 + 7 = 23 + *$ should be a multiple of 9.

To be divisible by 9, the least value of * should be 4, i.e., $23 + 4 = 27$, which is a multiple of 9.

∴ * = 4

(v) 667881

Here, $6 + 6 + 7 + 8 + * + 1 = 28 + *$ should be a multiple of 9.

To be divisible by 9, the least value of * should be 8, i.e., $28 + 8 = 36$, which is a multiple of 9.

∴ * = 8

(vi) 835686

Here, $8 + 3 + 5 + * + 8 + 6 = 30 + *$ should be a multiple of 9.

To be divisible of 9, the least value of * should be 6, i.e., $30 + 6 = 36$, which is a multiple of 9.

∴ * = 6

Q13

Answer :

(i) 26*5

Sum of the digits at odd places = 5 + 6 = 11

Sum of the digits at even places = * + 2

Difference = sum of odd terms − sum of even terms

= 11 − (* + 2)

= 11 − * − 2

= 9 − *

Now, (9 − *) will be divisible by 11 if * = 9.

i.e., 9 − 9 = 0

0 is divisible by 11.

∴ * = 9

Hence, the number is 2695.

(ii) 39*43

Sum of the digits at odd places = 3 + * + 3 = 6 + *

Sum of the digits at even places = 4 + 9 = 13

Difference = sum of odd terms − sum of even terms

= 6 + * − 13

= * − 7

Now, (* − 7) will be divisible by 11 if * = 7.

i.e., 7 − 7 = 0

0 is divisible by 11.

∴ * = 7

Hence, the number is 39743.

(iii) 86*72

Sum of the digits at odd places 2 + * + 8 = 10 + *

Sum of the digits at even places 6 + 7 = 13

Difference = sum of odd terms − sum of even terms

= 10 + * − 13

= * − 3

Now, (* − 3) will be divisible by 11 if * = 3.

i.e., 3 − 3 = 0

0 is divisible by 11.

∴ * = 3

Hence, the number is 86372.

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