4.00
02.07.21

Exercise 9(c)

1. Find which of the following numbers are divisible by 2:

i) 352

Ans- Given number = 352
Digit at unit's place = 2
Hence the number is divisible by 2

ii) 523

Ans- Given number = 523
Digit at unit's place = 3
Hence the number is not divisible by 2.

iii) 496

Ans- Given number = 496
Digit at unit's place = 6
Hence the number is divisible by 2

iv) 649

Ans- Given number = 649
Digit at unit's place = 9
Hence the number is not divisible by 2.

2. Find which of the following numbers are divisible by 4.

i) 222

Ans- Given number = 222
Number formed by its tens and units digit is 22, which is not divisible by 4.
Hence, 222 is not divisible by 4

ii) 532

Ans- Given number = 532
Number formed by its tens and unit digit is 32, which is divisible by 4.
Hence, 532 is divisible by 4.

iii) 678

Ans- Given number = 678

Number formed by its tens and unit digit is 78, which is not divisible by 4.

Hence, 678 is not divisible by 4.

iv) 9232

Ans- Given number = 9232

Number formed by its tens and unit digit is 32, which is divisible by 4.

Hence, 9232 is divisible by 4.

3. Find which of the following numbers are divisible by 8:

i) 324

Ans- Given number = 324

The number formed by its digits in hundred's place, ten's place and unit's place is 324, which is not divisible by 8.

Hence, 324 is not divisible by 8.

ii) 2536

Ans- Given number = 2536

The number formed by its hundred's, ten's and unit's digit is 536, which is divisible by 8.

Hence, 2536 is divisible by 8.

iii) 92760

Ans- Given number = 92760

The number formed by its hundred's, tens and unit's digit is 760, which is divisible by 8.

Hence, 92760 is divisible by 8.

iv) 444320

Ans- Given number = 444320

The number formed by its hundred's, ten's and unit's digit is 320, which is divisible by 8.

Hence, 444320 is divisible by 8.

4. Find which of the following numbers are divisible by 3:

i) 221

Ans- Given number = 221

~~Sum of~~ For a number is divisible by 3, if the sum of its digits is divisible by 3.

Sum of the digits = 2+2+1 = 5

Since 5 in not divisible by 3.

Hence 221 is not divisible by 3.

ii) 543

Ans- Given number = 543.

For a number is divisible by 3, if the sum of its digits is divisible by 3.

Sum of the digits = 5+4+3 = 12

Since 12 is divisible by 3.

Hence 543 is divisible by 3.

iii) 28492

Ans- Given number = 28492

For a number is divisible by 3, if the sum of its digits is divisible by 3.

Sum of the digits = 2+8+4+9+2 = 25

Since 25 is not divisible by 3.

Hence 28492 is not divisible by 3.

iv) 92349

Ans- Given number = 92349

For a number is divisible by 3, if the sum of its digits is divisible by 3.

Sum of the digits = 9+2+3+4+9 = 27

Since 27 is divisible by 3

Hence 92349 is divisible by 3.

5. Find which of the following numbers are divisible by 9:

i) 1332

Ans- Given number = 1332

For a number is divisible by 9, if the sum of the digits is divisible by 9.

Sum of the digits = 1+3+3+2 = 9

Since 9 is divisible by 9

Hence 1332 is divisible by 9.

ii) 53247

Ans- Given number = 53247

For a number is divisible by 9, if the sum of the digits is divisible by 9.

Sum of the digits = 5+3+2+4+7 = 21

Since 21 is not divisible by 9.

Hence 53247 is not divisible by 9.

iii) 4968

Ans- Given number = 4968

For a number is divisible by 9, if the sum of the digits is divisible by 9

Sum of the digits = 4+9+6+8 = 27

Since 27 is divisible by 9

Hence 4968 is divisible by 9.

iv) 200314

Ans- Given number = 200314

For a number is divisible by 9, if the sum of the digits is divisible by 9.

Sum of the digits = 2+0+0+3+1+4 = 10

Since 10 is not divisible by 9.

Hence 200314 is not divisible by 9.

6. Find which of the following number are divisible by 6:

i) 324

Ans- Given number = 324

For a number to be divisible by 6, if it is divisible by 2 as well as by 3 (as $6 = 2 \times 3$)

The number is divisible by 2 as digit at its unit's place is 4 which is even.

Sum of its digits = $3+2+4 = 9$, which is divisible by 3.

Hence, 324 is divisible by 6.

ii) 2010

Ans- Given number = 2010

For a number to be divisible by 6, if it is divisible by 2 as well as by 3 (as $6 = 2 \times 3$)

The number is divisible by 2 as the digit at its unit's place is 0.

Sum of its digit = $2+0+1+0 = 3$, which is divisible by 3.

Hence, ~~3321~~ 2010 is divisible by 6.

iii) 33278

Ans- Given number = 33278

For a number to be divisible by 6, if it is divisible by 2 as well as by 3 (as $2 \times 3 = 6$)

The number is divisible by 2 as the digit at its unit's place is 8, which is even.

Sum of its digit = $3+3+2+7+8 = 23$, which is not divisible by 3.

Hence 33,278 is not divisible by 6.

iv) 15505

Ans- Given number = 15505

For a number to be divisible by 6 if it is divisible by 2 as well as 3 (as 6 = 2 x 3)

The number is not divisible by 2 as the digit at its unit's place is 5, which is odd.

Sum of the digits = 1+5+5+0+5 = 16, which is not divisible by 3.

Hence, 15505 is not divisible by 6.

7. Find which of the following numbers are divisible by 5:

i) 5080

Ans- Given number = 5080

For a number to be divisible by 5, unit digit must be 0 or 5.

Since, the unit digit is 0, therefore 5080 is divisible by 5

ii) 66666

Ans- Given number = 66666

For a number to be divisible by 5, unit digit must be 0 or 5.

Since unit digit is 6, therefore 66666 is not divisible by 5.

iii) 755

Ans- Given number = 755

For a number to be divisible by 5, unit digit must be 0 or 5.

Since unit digit is 5, therefore 755 is divisible by 5.

iv) 9207

Ans- The given number = 9207

For a number to be divisible by 5, unit digit must be 0 or 5.

Since unit digit is 7, therefore the number is not divisible by 5.

8. Find which of the following numbers are divisible by 10:

i) 9990

Ans- The given number = 9990

A number is divisible by 10 if its unit digit is 0.

Since the unit digit is 0, therefore 9990 is divisible by 10.

ii) 0

Ans- The given number = 0

A number is divisible by 10 if its unit digit is 0.

Since the unit digit is 0, therefore 0 is divisible by 10.

iii) 847

Ans- The given number = 847

A number is divisible by 10, if its unit digit is 0.

Since the unit digit is 7, therefore 847 is not divisible by 10.

iv) 8976

Ans- The given number = 8976

A number is divisible by 10 if its unit digit is 0.

Since unit digit is 6, therefore 8976 is not divisible by 10.

9. Find which of the following numbers are divisible by 11:

i) 5918

Ans- Given number = 5918

A number is divisible by 11, if the difference of sum of its digits in odd places from the right side add the sum of its digits in even places from the right side is divisible by 11.

Sum of digits at odd places = 5+1 = 6

Sum of digits at even places = 9+8 = 17

Their difference = 17-6 = 11

Since the difference is 11 which is divisible by 11, therefore 5918 is divisible by 11.

ii) 68,717

Ans- Given number = 68,717

A number is divisible by 11, if the difference of sum of its digit in odd places from the right side and the sum of its digits in even places from the right side is divisible by 11.

Sum of digits at odd places = 6+7+7 = 20

Sum of digits at even places = 8+1 = 9

Difference = 20-9 = 11

Since difference is 11 which is divisible by 11, therefore 68,717 is divisible by 11

iii) 3882

Ans- Given number = 3882

A number is divisible by 11, if the difference of sum of its digit in odd places from the right side and sum of its digits in even places from the right side is divisible by 11.

Sum of digits at odd places = 3+8 = 11

Sum of digits at even places = 8+2 = 10

Difference = 11-10 = 1

Since difference is 1 which is not divisible by 11, therefore 3882 is not divisible by 11.

iv) 10857

Ans- Given number = 10857

A number is divisible by 11, if the difference of sum of its digits in odd places from the right side and the sum of its digits in even places from the right side is divisible by 11

Sum of digits at odd places = 1+8+7 = 16

Sum of digits at even places = 0+5 = 5

Difference = 16-5 = 11

Since difference is 11 which is divisible by 11, therefore 10857 is divisible by 11.

10. Find which of the following numbers are divisible by 15:

i) 960

Ans- Given number = 960

For a number to be divisible by 15, it should be divisible by both 3 & 5.

Sum of digits = 9+6+0 = 15

Since 15 is divisible by 3.

The digit at its unit's place = 0

Therefore 960 is divisible by 5

Hence, 960 is divisible by 15.

ii) 8295

Ans- Given number = 8295

For a number to be divisible by 15 it should be divisible by both 3 and 5.

Sum of digits = 8+2+9+5 = 24

Since 24 is divisible by 3 therefore the number is divisible by 3 and its unit digit is 5 so it is divisible by 5.

Hence 8295 is divisible by 15.

iii) 10243

Ans- Given number = 10243

For a number to be divisible by 15 it should be divisible by both 3 and 5.

Sum of digits = 1+0+2+4+3 = 10

Since 10 is not divisible by 3 therefore the number is not divisible by 3 and unit digit is 3 so it is not divisible by 5.

Hence 8295 is not divisible by 15

iv) 5013

Ans: Given number = 5013

For a number to be divisible by 15 it should be divisible by both 3 and 5.

Sum of digits = 5+0+1+3 = 9

Since 9 is divisible by 3 therefore the number is divisible by 3 and unit digit is 3 so it is not divisible by 5.

Hence, 5013 is not divisible by 15.

11) In each of the following numbers, replace M by the smallest number to make resulting number divisible by 3:

i) 64M3

Ans: The given number = 64M3

For a number to be divisible by 3 sum of digits must be divisible by 3.

Sum of the digits = 6+4+3 = 13

The number next to 13 which is divisible by 3 is 15

Required smallest number = 15-3 = 2

Therefore the value of M is 2.

ii) 46M46

Ans: The given number = 46M46

For a number to be divisible by 3 sum of digits must be divisible by 3.

Sum of its digits = 4+6+4+6 = 20

The number next to 20 which is divisible by 3 is 21.

Required smallest number = 21-20 = 1

Therefore the value of M is 1

ii) 27M53

Ans- The given number = 27M53

For a number to be divisible by 3 sum of digits must be divisible by 3.

Sum of the digits = 2+7+5+3 = 17

The number next to 17 which is divisible by 3 is 18.

Required Smallest number = 18 - 17 = 1

Therefore, value of M is 1.

12) In each of the following numbers replace M by the smallest number to make resulting number divisible by 9.

i) 76M91

Ans- The given number = 76M91

For a number to be divisible by 9 sum of its digits must be divisible by 9.

Sum of its given digits = 7+6+9+1 = 23

The number next to 23, which is divisible by 9 is 27.

Required smallest number = 27 - 23 = 4

Therefore, value of M is 4.

ii) 77548M

Ans- The given number = 77548M

For a number to be divisible by 9 sum of its digits must be divisible by 9

Sum of its given digits = 7+7+5+4+8 = 31

The number next to 31, which is divisible by 9 is 36

Required smallest number = 36 - 31 = 5

Therefore, value of M is 5.

(ii) 627M9

Ans- The given number = 627M9

For a number to be divisible by 9 sum of its digits must be divisible by 9

Sum of its given digits = 6+7+2+9 = 24

The number next to 24, which is divisible by 9 is 27.

Required smallest number = 27-24 = 3

Therefore, value of M is 3.

13) In each case of the following numbers, replace M by the smallest number to make resulting number divisible 11.

i) 39M2

Ans- The given number = 39M2

A number is divisible by 11, if the difference of sum of its digits in odd places from the right side and the sum of its digits in even places from the right side is divisible by 11.

Sum of its digits in odd places = 3+M

Sum of its digits in even places = 9+2 = 11

Their difference = 11 - (3+M) = 0

= 11 - 3 - M = 0

= M = 8

Therefore the value of M is 8.

ii) 3M422

Ans- The given number = 3M422

A number is divisible by 11, if the difference of sum of its digits in odd places from the right side and the sum of its digits in even places from the right side is divisible by 11.

Sum of its digits in odd places = 3+4+2 = 9

Sum of its digits in even places = M+2

Their difference = 9-(2+M) = 0

= 9-2-M = 0

= M = 7

Therefore, value of M is 7.

iii) 70975M

Ans. The given number = 70975M

A number is divisible by 11, if the difference of sum of its digits in odd places from the right side and the sum of its digits in even places from the right side is divisible by 11.

Sum of its digits in odd places = 0+7+M = 7+M

Sum of its digits in even places = 5+9+7 = 21

Their difference = 21-(7+M) = 0

= 21-7-M = 0

= M = 14

Therefore, value of M is 14.

iv) 14M75

Ans. The given number = 14M75

A number is divisible by 11, if the difference of sum of its digits in odd places from the right side and the sum of its digits in even places from the right side is divisible by 11.

Sum of its digits in odd places = 1+M+5 = M+6

Sum of its digits in even places = 4+7 = 11

Their difference = 11-(6+M) = 0

= 11-6-M = 0

= M = 5

Therefore, value of M is 5.

14) State, true or false:

i) If a number is divisible by 4, it is divisible by 8. False

ii) If a number is a factor of 16 and 24, it is a factor of 48. True

iii) If a number is divisible by 18, it is divisible by 3 and 6. True

iv) If a divide b and c completely, then a divides (i) a+b (ii) a-b also completely. True