

Divisibility test for 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11

(i) Test of divisibility by 2: A number is divisible by 2 if its ones digit is 0, 2, 4, 6 or 8.

Example: Each of the numbers 30, 2108, 64, 71892, 976 is divisible by 2.

(ii) Test of divisibility by 3: A number is divisible by 3 if the sum of its digits is divisible by 3.

Example: Consider the number 64275

Sum of the digits = $6 + 4 + 2 + 7 + 5 = 24$, Which is divisible by 3. ($24 \div 3 = 8$)

Therefore, 64275 is divisible by 3.

(iii) Test of divisibility by 6: A number is divisible by 6 if it is divisible by each one of 2 and 3.

Example: Each of the numbers 18, 1356, 564 is divisible by 6 because each number is divisible by 2 and 3 both.

(iv) Test of divisibility by 5: A number is divisible by 5 if its ones digit is 0 or 5.

Example: Each of the numbers 205, 95, 100, 60 is divisible by 5.

(v) Test of divisibility by 10: A number is divisible by 10 if its ones digit is 0.

Example: Each of the numbers 200, 380, 600, 430 is divisible by 10.

(vi) Test of divisibility by 4: A number is divisible by 4 if the number formed by its digits in the tens and ones places is divisible by 4.

Example: Consider the number 96852.

The number formed by tens and ones digits is 52, which is divisible by 4. ($52 \div 4 = 13$)

Therefore, 96852 is divisible by 4.

(v) Test of divisibility by 8: A number is divisible by 8 if the number formed by its digits in hundreds, tens and ones places is divisible by 8

Example: Consider the number 79152.

The number formed by hundreds, tens and ones digits is 152, which is divisible by 8.

($152 \div 8 = 19$) Therefore, 79152 is divisible by 8.

(vi) Test of divisibility by 9: A number is divisible by 9 if the sum of its digits is divisible by 9.

Example: Consider the number 65403.

Sum of the digits = $6 + 5 + 4 + 0 + 3 = 18$, Which is divisible by 9. ($18 \div 9 = 2$)

Therefore, 65403 is divisible by 9.

(vii) Test of divisibility by 7: A number is divisible by 7 if the difference between twice the ones digit and the number formed by other digits is either 0 or a multiple of 7.

Example: Consider the number 6804.

Clearly, $680 - 2 \times 4 = 680 - 8 = 672$, which is divisible by 7. ($672 \div 7 = 96$)

Therefore, 6804 is divisible by 7.

(viii) Test of divisibility by 11: A number is divisible by 11 if the difference of the sum of its digits in odd places and the sum of its digits in even places (starting from the ones place) is either 0 or a multiple of 11.

Example: Consider the number 90728.

Sum of digits in odd places = $8 + 7 + 9 = 24$

Sum of digits in even places = $2 + 0 = 2$

Difference of two sums = $24 - 2 = 22$, which is multiple of 11.

Therefore, 90728 is divisible by 11.

Assignment

1. Test the divisibility of the following numbers by 2.
a) 6890 b) 567432 c) 60090 d) 12
2. Test the divisibility of the following numbers by 3 and 9.
a) 2985 b) 7002 c) 6742089 d) 39447
3. Test the divisibility of the following numbers by 5 and 10.
a) 1205 b) 4050 c) 6680 d) 2125
4. Test the divisibility of the following numbers by 4 and 8.
a) 596792 b) 7868 c) 972144 d) 9714
5. Test the divisibility of the following numbers by 7.
a) 826 b) 2345 c) 6021 d) 117
6. Test the divisibility of the following numbers by 6.
a) 71232 b) 2070 c) 46523 d) 7002
7. Test the divisibility of the following numbers by 11.
a) 936612 b) 83721 c) 663113 d) 918024

Note: This worksheet is prepared at home