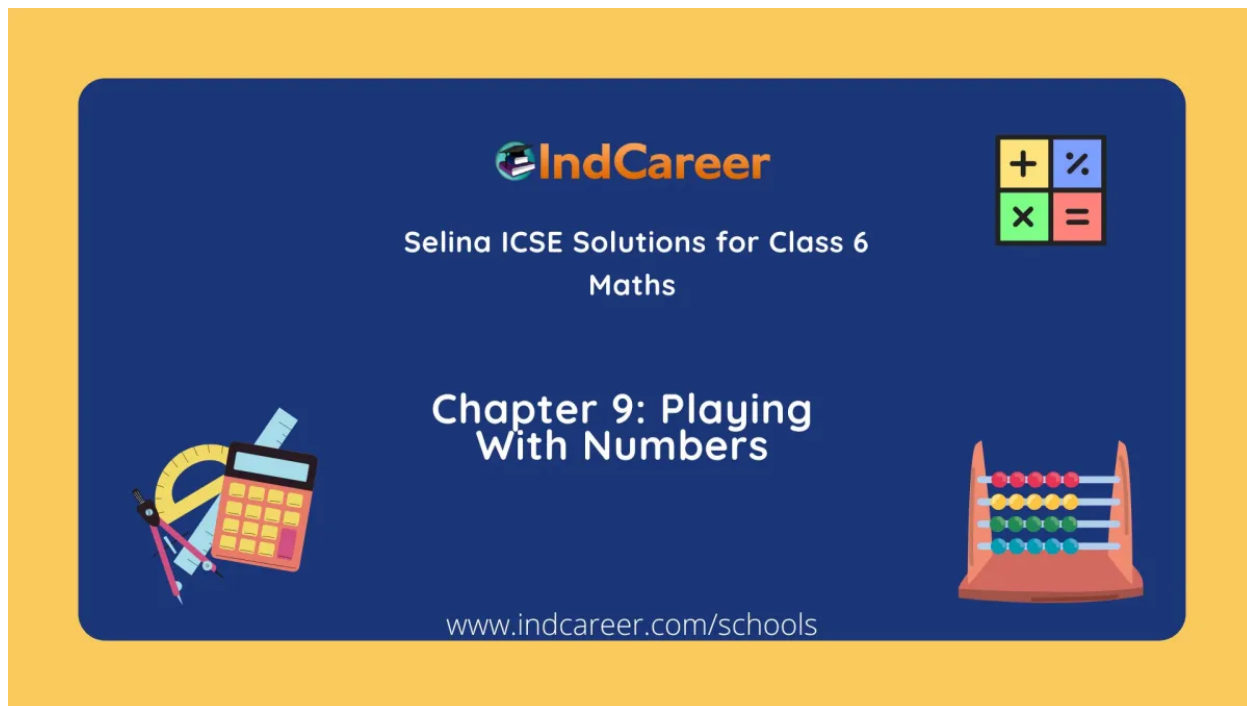


# Selina Class 6 ICSE Solutions Mathematics : Chapter 9- Playing With Numbers



For any clarifications or questions you can write to **info@indcareer.com**

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# Selina Class 6 ICSE Solutions Mathematics :

## Chapter 9- Playing With Numbers

Class 6: Maths Chapter 9 solutions. Complete Class 6 Maths Chapter 9 Notes.

### Selina Class 6 ICSE Solutions Mathematics : Chapter 9- Playing With Numbers

Selina 6th Maths Chapter 9, Class 6 Maths Chapter 9 solutions

#### Exercise 9(A)

(Using BODMOS)

1.  $19 - (1 + 5) - 3$

**Solution:**

Given

$$19 - (1 + 5) - 3$$

On further calculation, we get

$$= 19 - 6 - 3$$

$$= 19 - 9$$

$$= 10$$

2.  $30 \times 6 \div (5 - 2)$

**Solution:**

Given

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$$30 \times 6 \div (5 - 2)$$

On further calculation, we get

$$= 30 \times 6 \div 3$$

$$= 30 \times 2$$

$$= 60$$

$$3. 28 - (3 \times 8) \div 6$$

**Solution:**

Given

$$28 - (3 \times 8) \div 6$$

Calculating further, we get

$$= 28 - 24 \div 6$$

$$= 28 - 4$$

$$= 24$$

$$4. 9 - [(4 - 3) + 2 \times 5]$$

**Solution:**

Given

$$9 - [(4 - 3) + 2 \times 5]$$

We get

$$= 9 - [1 + 10]$$

$$= 9 - 11$$

$$= -2$$

$$5. [18 - (15 \div 5) + 6]$$

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**Solution:**

$$\text{Given}[18 - (15 \div 5) + 6]$$

On further calculation, we get

$$= [18 - 3 + 6]$$

$$= 18 + 3$$

$$= 21$$

**6.  $[(4 \times 2) - (4 \div 2)] + 8$**

**Solution:**

$$\text{Given}[(4 \times 2) - (4 \div 2)] + 8$$

On further calculation, we get

$$= [8 - 2] + 8$$

$$= 6 + 8$$

$$= 14$$

**7.  $48 + 96 \div 24 - 6 \times 18$**

**Solution:**

Given

$$48 + 96 \div 24 - 6 \times 18$$

We get

$$= 48 + 4 - 6 \times 18$$

$$= 48 + 4 - 108$$

$$= 52 - 108$$

$$= - 56$$

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8.  $22 - [3 - \{8 - (4 + 6)\}]$

**Solution:**

Given

$$22 - [3 - \{8 - (4 + 6)\}]$$

On calculating further, we get

$$= 22 - [3 - \{8 - 10\}]$$

$$= 22 - [3 + 2]$$

$$= 22 - 5$$

$$= 17$$

9.  $34 - [29 - \{30 + 66 \div (24 - 2)\}]$

**Solution:**

Given

$$34 - [29 - \{30 + 66 \div (24 - 2)\}]$$

On further calculation, we get

$$= 34 - [29 - \{30 + 66 \div (24 - 2)\}]$$

$$= 34 - [29 - \{30 + 66 \div 22\}]$$

$$= 34 - [29 - \{30 + 3\}]$$

$$= 34 - [29 - 33]$$

$$= 34 - [-4]$$

$$= 34 + 4$$

$$= 38$$

10.  $60 - \{16 \div (4 \times 6 - 8)\}$

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**Solution:**

Given

$$60 - \{16 \div (4 \times 6 - 8)\}$$

On further calculation, we get

$$= 60 - \{16 \div (24 - 8)\}$$

$$= 60 - \{16 \div 16\}$$

$$= 60 - 1$$

$$= 59$$

**11.  $25 - [12 - \{5 + 18 \div (4 - )\}]$**

**Solution:**

Given

$$25 - [12 - \{5 + 18 \div (4 - )\}]$$

By calculating further, we get

$$= 25 - [12 - \{5 + 18 \div (4 - 2)\}]$$

$$= 25 - [12 - \{5 + 18 \div 2\}]$$

$$= 25 - [12 - \{5 + 9\}]$$

$$= 25 - [12 - 14]$$

$$= 25 - [-2]$$

$$= 25 + 2$$

$$= 27$$

**12.  $15 - [16 - \{12 + 21 \div (9 - 2)\}]$**

**Solution:**

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Given

$$15 - [16 - \{12 + 21 \div (9 - 2)\}]$$

On further calculation, we get

$$= 15 - [16 - \{12 + 21 \div 7\}]$$

$$= 15 - [16 - \{12 + 3\}]$$

$$= 15 - [16 - 15]$$

$$= 15 - 1$$

$$= 14$$

### Exercise 9(B)

#### 1. Fill in the blanks:

(i) On dividing 9 by 7, quotient = ..... and remainder = .....

(ii) On dividing 18 by 6, quotient = ..... and remainder = .....

(iii) Factor of a number is ..... of .....

(iv) Every number is a factor of .....

(v) Every number is a multiple of .....

(vi) ..... is factor of every number.

(vii) For every number, its factors are ..... and its multiples are .....

(viii)  $x$  is a factor of  $y$ , then  $y$  is a ..... of  $x$ .

#### Solution:

(i) On dividing 9 by 7, quotient = **1** and remainder = **2**

(ii) On dividing 18 by 6, quotient = **3** and remainder = **0**

(iii) Factor of a number is **an exact division of the number**

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- (iv) Every number is a factor of **itself**
- (v) Every number is a multiple of **itself**
- (vi) **One** is factor of every number
- (vii) For every number, its factors are **finite** and its multiples are **infinite**
- (viii)  $x$  is a factor of  $y$ , then  $y$  is a **multiple** of  $x$

**2. Write all the factors of:**

**(i) 16**

**(ii) 21**

**(iii) 39**

**(iv) 48**

**(v) 64**

**(vi) 98**

**Solution:**

**(i) 16**

**Solution:**

All factors of 16 are:

1, 2, 4, 8, 16

**(ii) 21**

**Solution:**

All factors of 21 are:

1, 3, 7, 21

**(iii) 39**

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**Solution:**

All factors of 39 are:

1, 3, 13, 39

**(iv) 48**

**Solution:**

All factors of 48 are:

1, 2, 3, 4, 6, 8, 12, 16, 24, 48

**(v) 64**

**Solution:**

All factors of 64 are:

1, 2, 4, 8, 16, 32, 64

**(vi) 98**

**Solution:**

All factors of 98 are:

1, 2, 7, 14, 49, 98

**3. Write the first six multiples of:**

**(i) 4**

**(ii) 9**

**(iii) 11**

**(iv) 15**

**(v) 18**

**(vi) 16**

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**Solution:**

(i) 4

Following are the first six multiples of 4

$$1 \times 4 = 4$$

$$2 \times 4 = 8$$

$$3 \times 4 = 12$$

$$4 \times 4 = 16$$

$$5 \times 4 = 20$$

$$6 \times 4 = 24$$

Hence, multiples of 4 are 4, 8, 12, 16, 20 and 24

(ii) 9

Following are the first six multiples of 9

$$1 \times 9 = 9$$

$$2 \times 9 = 18$$

$$3 \times 9 = 27$$

$$4 \times 9 = 36$$

$$5 \times 9 = 45$$

$$6 \times 9 = 54$$

Hence, multiples of 9 are 9, 18, 27, 36, 45 and 54

(iii) 11

Following are the first six multiples of 11

$$1 \times 11 = 11$$

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$$2 \times 11 = 22$$

$$3 \times 11 = 33$$

$$4 \times 11 = 44$$

$$5 \times 11 = 55$$

$$6 \times 11 = 66$$

Hence, multiples of 11 are 11, 22, 33, 44, 55 and 66

(iv) 15

Following are the first six multiples of 15

$$1 \times 15 = 15$$

$$2 \times 15 = 30$$

$$3 \times 15 = 45$$

$$4 \times 15 = 60$$

$$5 \times 15 = 75$$

$$6 \times 15 = 90$$

Hence, multiples of 15 are 15, 30, 45, 60, 75 and 90

(v) 18

Following are the first six multiples of 18

$$1 \times 18 = 18$$

$$2 \times 18 = 36$$

$$3 \times 18 = 54$$

$$4 \times 18 = 72$$

$$5 \times 18 = 90$$

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$$6 \times 18 = 108$$

Hence, multiples of 18 are 18, 36, 54, 72, 90 and 108

(vi) 16

Following are the first six multiples of 16

$$1 \times 16 = 16$$

$$2 \times 16 = 32$$

$$3 \times 16 = 48$$

$$4 \times 16 = 64$$

$$5 \times 16 = 80$$

$$6 \times 16 = 96$$

Hence, multiples of 16 are 16, 32, 48, 64, 80 and 96

**4. The product of two numbers is 36 and their sum is 13. Find the numbers.**

**Solution:**

36 can be written as

$$1 \times 36 = 36$$

$$2 \times 18 = 36$$

$$3 \times 12 = 36$$

$$4 \times 9 = 36$$

$$6 \times 6 = 36$$

Here, the sum of 4 and 9 is 13

Hence, 4 and 9 are the two numbers

**5. The product of two numbers is 48 and their sum is 16. Find the numbers.**

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**Solution:**

48 can be written as

$$1 \times 48 = 48$$

$$2 \times 24 = 48$$

$$3 \times 16 = 48$$

$$4 \times 12 = 48$$

$$6 \times 8 = 48$$

Here, the sum of 4 and 12 is 16

Hence, 4 and 12 are the two numbers

**6. Write two numbers which differ by 3 and whose product is 54.**

**Solution:**

54 can be written as

$$1 \times 54 = 54$$

$$2 \times 27 = 54$$

$$3 \times 18 = 54$$

$$6 \times 9 = 54$$

Here, the difference between 6 and 9 is 3

Hence, 6 and 9 are the two numbers

**7. Without making any actual division show that 7007 is divisible by 7.**

**Solution:**

Given

7007

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This can be written as

$$= 7000 + 7$$

$$= 7 \times (1000 + 1)$$

$$= 7 \times 1001$$

Clearly, 7007 is divisible by 7

**8. Without making any actual division show that 2300023 is divisible by 23**

**Solution:**

Given

2300023

This can be written as

$$= 2300000 + 23$$

$$= 23 \times (100000 + 1)$$

$$= 23 \times 100001$$

Clearly, 2300023 is divisible by 23

**9. Without making any actual division, show that each of the following numbers is divisible by 11**

**(i) 11011**

**(ii) 110011**

**(iii) 11000011**

**Solution:**

**(i) 11011**

This can be written as

$$= 11000 + 11$$

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$$= 11 \times (1000 + 1)$$

$$= 11 \times 1001$$

Clearly, 11011 is divisible by 11

(ii) 110011

This can be written as

$$= 110000 + 11$$

$$= 11 \times (10000 + 1)$$

$$= 11 \times 10001$$

Clearly, 110011 is divisible by 11

(iii) 11000011

This can be written as

$$= 11000000 + 11$$

$$= 11 \times (1000000 + 1)$$

$$= 11 \times 1000001$$

Clearly, 11000011 is divisible by 11

**10. Without actual division, show that each of the following numbers is divisible by 8**

**(i) 1608**

**(ii) 56008**

**(iii) 240008**

**Solution:**

(i) 1608

This can be written as

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$$= 1600 + 8$$

$$= 8 \times (200 + 1)$$

$$= 8 \times 201$$

Clearly, 1608 is divisible by 8

(ii) 56008

This can be written as

$$= 56000 + 8$$

$$= 8 \times (7000 + 1)$$

$$= 8 \times 7001$$

Clearly, 56008 is divisible by 8

(iii) 240008

This can be written as

$$= 240000 + 8$$

$$= 8 \times (30000 + 1)$$

$$= 8 \times 30001$$

Clearly, 240008 is divisible by 8

### Exercise 9(C)

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

(i) 352

(ii) 523

(iii) 496

(iv) 649

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**Solution:**

(i) 352

The given number = 352

Digit at unit's place = 2

Hence, the number is divisible by 2

(ii) 523

The given number = 523

Digit at unit's place = 3

Hence, the number is not divisible by 2

(iii) 496

The given number = 496

Digit at unit's place = 6

Hence, the number is divisible by 2

(iv) 649

The given number = 649

Digit at unit's place = 9

Hence, the number is not divisible by 2

**2. Find which of the following number are divisible by 4:**

(i) 222

(ii) 532

(iii) 678

(iv) 9232

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**Solution:**

(i) 222

The given number = 222

The number formed by ten's and unit digit is 22, which is not divisible by 4.

Hence, the number is not divisible by 4

(ii) 532

The given number = 532

The number formed by ten's and unit digit is 32, which is divisible by 4.

Hence, the number is divisible by 4

(iii) 678

The given number = 678

The number formed by ten's and unit digit is 78, which is not divisible by 4

Hence, the number is not divisible by 4

(iv) 9232

The given number = 9232

The number formed by ten's and unit digit is 32, which is divisible by 4

Hence, the number is divisible by 4

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

(i) 324

(ii) 2536

(iii) 92760

(iv) 444320

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**Solution:**

(i) 324

The given number = 324

The number formed by hundred's, ten's and unit digit is 324, which is not divisible by 8

Hence, 324 is not divisible by 8

(ii) 2536

The given number = 2536

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

Hence, 2536 is divisible by 8

(iii) 92760

The given number = 92760

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

Hence, 92760 is divisible by 8

(iv) 444320

The given number = 444320

The number formed by hundred's, ten's and unit 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

(ii) 543

(iii) 28492

(iv) 92349

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**Solution:**

(i) 221

The given number = 221

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

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

Since 5 is not divisible by 3

Hence, 221 is not divisible by 3

(ii) 543

The given number = 543

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

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

Since 12 is divisible by 3

Hence, 543 is divisible by 3

(iii) 28492

The given number = 28492

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

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

Since 25 is not divisible by 3

Hence, 28492 is not divisible by 3

(iv) 92349

The given number = 92349

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

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Sum of 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**

**(ii) 53247**

**(iii) 4968**

**(iv) 200314**

**Solution:**

(i) 1332

The given number = 1332

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

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

Since 9 is divisible by 9

Hence, 1332 is divisible by 9

(ii) 53247

The given number = 53247

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

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

Since 21 is not divisible by 9

Hence, 53247 is not divisible by 9

(iii) 4968

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The given number = 4968

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

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

Since 27 is divisible by 9

Hence, 4968 is divisible by 9

(iv) 200314

The given number = 200314

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

Sum of 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**

**(ii) 2010**

**(iii) 33278**

**(iv) 15505**

**Solution:**

A number which is divisible by either 2 and 3 or both then the given number is divisible by 6

(i) 324

The given number = 324

Sum of digits =  $3 + 2 + 4 = 9$

which is divisible by 3

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Therefore, 324 is divisible by 6

(ii) 2010

The given number = 2010

Sum of digits =  $2 + 0 + 1 + 0 = 3$

which is divisible by 3

Therefore, 2010 is divisible by 6

(iii) 33278

The given number = 33278

Sum of digits =  $3 + 3 + 2 + 7 + 8 = 23$

Unit digit is 8, which is even

Therefore, 33278 is not divisible by 6

(iv) 15505

The given number = 15505

Sum of digits =  $1 + 5 + 5 + 0 + 5 = 16$

which is not divisible by 3

Therefore, 15505 is not divisible by 6

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

(i) 5080

(ii) 66666

(iii) 755

(iv) 9207

**Solution:**

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(i) 5080

The given number = 5080

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

Here, unit digit is 0

Therefore, 5080 is divisible by 5

(ii) 66666

The given number = 66666

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

Here, unit digit is 6

Therefore, 66666 is not divisible by 5

(iii) 755

The given number = 755

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

Here, unit digit is 5

Therefore, 755 is divisible by 5

(iv) 9207

The given number = 9207

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

Here, unit digit is 7

Therefore, 9207 is not divisible by 5

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

**(i) 9990**

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(ii) 0

(iii) 847

(iv) 8976

**Solution:**

(i) 9990

The given number = 9990

For a number to be divisible by 10, unit's digit must be 0

Here, unit digit is 0

Therefore, 9990 is divisible by 10

(ii) 0

The given number = 0

For a number to be divisible by 10, unit's digit must be 0

Here, unit digit is 0

Therefore, 0 is divisible by 10

(iii) 847

The given number = 847

For a number to be divisible by 10, unit's digit must be 0

Here, unit digit is 7

Therefore, 847 is not divisible by 10

(iv) 8976

The given number = 8976

For a number to be divisible by 10, unit's digit must be 0

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Here, unit digit is 6

Therefore, 8976 is not divisible by 10

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

**(i) 5918**

**(ii) 68,717**

**(iii) 3882**

**(iv) 10857**

**Solution:**

**(i) 5918**

The given number = 5918

If the difference of sum of its digit in odd places from left side and sum of digits in even places from left side is divisible by 11 then the number is divisible by 11

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

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

Difference =  $17 - 6 = 11$

Here, the difference is 11 which is divisible by 11

Hence, the number is divisible by 11

**(ii) 68717**

The given number = 68717

If the difference of sum of its digit in odd places from left side and sum of digits in even places from left side is divisible by 11 then the number is divisible by 11

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

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

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$$\text{Difference} = 20 - 9 = 11$$

Here, difference is 11 which is divisible by 11

Hence, the number is divisible by 11

(iii) 3882

The given number = 3882

If the difference of sum of its digit in odd places from left side and sum of digits in even places from left side is divisible by 11 then the number is divisible by 11

$$\text{Sum of digits at odd places} = 3 + 8 = 11$$

$$\text{Sum of digits at even places} = 8 + 2 = 10$$

$$\text{Difference} = 11 - 10 = 1$$

Here, difference is 1 which is not divisible by 11

Hence, the number is not divisible by 11

(iv) 10857

The given number = 10857

If the difference of sum of its digit in odd places from left side and sum of digits in even places from left side is divisible by 11 then the number is divisible by 11

$$\text{Sum of digits at odd places} = 1 + 8 + 7 = 16$$

$$\text{Sum of digits at even places} = 0 + 5 = 5$$

$$\text{Difference} = 16 - 5 = 11$$

Here, difference is 11 which is divisible by 11

Hence, the number is divisible by 11

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

**(i) 960**

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(ii) 8295

(iii) 10243

(iv) 5013

**Solution:**

(i) 960

The given number = 960

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

Sum of digits =  $9 + 6 + 0 = 15$

Since 15 is divisible by 3

So, the number is divisible by 3

Here, unit digit is 0, so it is divisible by 5

Hence, the number is divisible by 15

(ii) 8295

The 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

So, the number is divisible by 3

Here, unit digit is 5, so it is divisible by 5

Hence, the number is divisible by 15

(iii) 10243

The given number = 10243

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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

So, the number is not divisible by 3

Here, unit digit is 3, so it is not divisible by 5

Hence, the number is not divisible by 15

(iv) 5013

The 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

So, the number is divisible by 3

Here, unit digit is 3, so it is not divisible by 5

Hence, the number 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) 64 M 3

(ii) 46 M 46

(iii) 27 M 53

**Solution:**

(i) 64 M 3

The given number = 64 M 3

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

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

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

Required smallest number =  $15 - 13 = 2$

Hence, value of M is 2

(ii) 46 M 46

The given number = 46 M 46

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

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

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

Required smallest number =  $21 - 20 = 1$

Hence, the value of M is 1

(iii) 27 M 53

The given number = 27 M 53

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

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

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

Required smallest number =  $18 - 17 = 1$

Hence, the 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) 76 M 91

(ii) 77548 M

(iii) 627 M 9

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**Solution:**

(i) 76 M 91

The given number is 76 M 91

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

$$\text{Sum of digits} = 7 + 6 + 9 + 1 = 23$$

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

$$\text{Required smallest number} = 27 - 23 = 4$$

Hence, the value of M is 4

(ii) 77548 M

The given number = 77548 M

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

$$\text{Sum of digits} = 7 + 7 + 5 + 4 + 8 = 31$$

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

$$\text{Required smallest number} = 36 - 31 = 5$$

Hence, the value of M is 5

(iii) 627 M 9

The given number = 627 M 9

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

$$\text{Sum of digits} = 6 + 2 + 7 + 9 = 24$$

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

$$\text{Required smallest number} = 27 - 24 = 3$$

Hence, the value of M is 3

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

**(i) 39 M 2**

**(ii) 3 M 422**

**(iii) 70975 M**

**(iv) 14 M 75**

**Solution:**

**(i) 39 M 2**

The given number = 39 M 2

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

Sum of its digits in odd places =  $3 + M$

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

Difference:

$$11 - (3 + M) = 0$$

$$11 - 3 - M = 0$$

$$8 - M = 0$$

$$M = 8$$

Hence, the value of M is 8

**(ii) 3 M 422**

The given number = 3 M 422

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

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

Sum of its digits in even places =  $M + 2 = 11$

Difference:

$$9 - (M + 2) = 0$$

$$9 - M - 2 = 0$$

$$9 - 2 = M$$

$$M = 7$$

Hence, the value of M is 7

(iii) 70975 M

The given number is 70975 M

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

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

Sum of its digits in even places =  $0 + 7 + M = 7 + M$

Difference:

$$21 - (7 + M) = 0$$

$$21 = 7 + M$$

$$M = 14$$

Hence, the value of M is 14

(iv) 14 M 75

The given number is 14 M 75

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

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

$$= 6 + M$$

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

$$= 11$$

Difference:

$$11 - (6 + M) = 0$$

$$11 = 6 + M$$

$$M = 11 - 6$$

$$M = 5$$

Hence, the value of M is 5

**14. State, true or false:**

**(i) If a number is divisible by 4. It is divisible by 8**

**(ii) If a number is a factor 16 and 24, it is a factor of 48**

**(iii) If a number is divisible by 18, it is divisible by 3 and 6**

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

**Solution:**

(i) False

The number is divisible by 4, if tens and unit digit is divisible by 4

The number is divisible by 8, if hundreds, tens and unit digit is divisible by 8

(ii) True

As 16 and 24 are factors of 48

(iii) True

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The product of 3 and 6 is 18, so if a number is divisible by 18, it is divisible by 3 and 6

(iv) True

If a divides b and c completely, then a divides  $a + b$  and  $a - b$  completely

Hence, if a number is a factor of each of the two numbers, then it is a factor of their sum also



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