RS Aggrawal Solutions for Class 6 Maths Chapter 2 Factors And Multiples

ANSWER:

Factor: A factor of a number is an exact divisor of that number.
Multiple: A multiple of a number is a number obtained by multiplying it by a natural number.

Example 1: We know that 15 = 1 × 15 and 15 = 3 × 5

∴ 1, 3, 5 and 15 are the factors of 15
In other words, we can say that 15 is a multiple of 1, 3, 5 and 15.

Example 2: We know that 8 = 8 × 1, 8 = 2 × 4 and 8 = 4 × 2

∴ 1, 2, 4 and 8 are the factors of 8.
In other words, we can say that 8 is a multiple of 1, 2, 4 and 8.

Example 3: We know that 30 = 30 × 1, 30 = 5 × 6 and 30 = 6 × 5

∴ 1, 5, 6 and 30 are factors of 30.
In other words, we can say that 30 is a multiple of 1, 5, 6 and 30.

Example 4: We know that 20 = 20 × 1, 20 = 4 × 5 and 20 = 5 × 4

∴ 1, 4, 5 and 20 are factors of 20.
In other words, we can say that 20 is a multiple of 1, 4, 5 and 20.

Example 5: We know that 10 = 10 × 1, 10 = 2 × 5 and 10 = 5 × 2

∴ 1, 2, 5 and 10 are factors of 10.
In other words, we can say that 10 is a multiple of 1, 2, 5 and 10.

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ANSWER:

(i) 20
20 = 1 × 20; 20 = 10 × 2 and 20 = 4 × 5
The factors of 20 are 1, 2, 4, 5, 10 and 20.

(ii) 36

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36 = 1 × 36; 36 = 2 × 18; 36 = 3 × 12 and 36 = 4 × 9
The factors of 36 are 1, 2, 3, 4, 6, 9, 12 and 36.

(iii) 60
60 = 1 × 60; 60 = 2 × 30; 60 = 3 × 20; 60 = 4 × 15 and 60 = 5 × 12
The factors of 60 are 1, 2, 3, 4, 5, 6, 10, 12, 15 and 60.

(iv) 75
75 = 1 × 75; 75 = 3 × 25 and 75 = 5 × 15
The factors of 75 are 1, 3, 5, 15, 25 and 75.

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ANSWER:

(i) 17
17 × 1 = 17; 17 × 2 = 34; 17 × 3 = 51; 17 × 4 = 68 and 17 × 5 = 85
∴ The first five multiples of 17 are 17, 34, 51, 68 and 85.

(ii) 23
23 × 1=23; 23 × 2 = 46; 23 × 3 = 69; 23 × 4 = 92 and 23 × 5 = 115
∴ The first five multiples of 23 are 23, 46, 69, 92 and 115.

(iii) 65
65 × 1 = 65; 65 × 2 = 130; 65 × 3 = 195; 65 × 4 = 260 and 65 × 5 = 325
∴ The first five multiples of 65 are 65, 130, 195, 260 and 325.

(iv) 70
70 × 1=70; 70 × 2 = 140; 70 × 3 = 210; 70 × 4 = 280 and 70 × 5 = 350
∴ The first five multiples of 70 are 70, 140, 210, 280 and 350.

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ANSWER:

(i) 32
Since 32 is a multiple of 2, it is an even number.
(ii) 37
Since 37 is not a multiple of 2, it is an odd number.
(iii) 50
Since 50 is a multiple of 2, it is an even number.
(iv) 58
Since 58 is a multiple of 2, it is an even number.

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(v) 69
Since 69 is not a multiple of 2, it is an odd number.
(vi) 144
Since 144 is a multiple of 2, it is an even number.
(vii) 321
Since 321 is not a multiple of 2, it is an odd number.
(viii) 253
Since 253 is not a multiple of 2, it is an odd number.

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ANSWER:

Prime number: A number is called a prime number if it has only two factors, namely 1 and itself .

Examples: 2, 3, 5, 7, 11, 13, 17, 19, 23 and 29 are prime numbers.

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ANSWER:

(i) All prime numbers between 10 and 40 are 11, 13, 17, 19, 23, 29, 31 and 37.
(ii) All prime numbers between 80 and 100 are 83, 89 and 97.
(iii) All prime numbers between 40 and 80 are 41, 43, 47, 53, 59, 61, 67, 71, 73 and 79.
(iv) All prime numbers between 30 and 40 are 31 and 37.

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ANSWER:

(i) The smallest prime number is 2.
(ii) There is only one even prime number, i.e., 2.
(iii) The smallest odd prime number is 3.

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ANSWER:

(i) 87
The divisors of 87 are 1, 3, 29 and 87 i.e. 87 has more than 2 factors. Therefore 87 is not a prime number.

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(ii) 89
The divisors of 89 are 1 and 89. Therefore 89 is a prime number.

(iii) 63
The divisors of 63 are 1, 3, 7, 9, 21 and 63 i.e. 63 has more than 2 factors. Therefore 63 is not a prime number.

(iv) 91
The divisors of 91 are 1, 7, 13 and 91 i.e. 91 has more than 2 factors. Therefore 91 is not a prime number.

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ANSWER:

90, 91, 92, 93, 94, 95 and 96 are seven consecutive numbers and none of them is a prime.

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ANSWER:

(i) No, there are no counting numbers with no factors at all because every number has at least two factors, i.e., 1 and itself.
(ii) There is only one number that has exactly one factor, i.e, 1.
(iii) The numbers between 1 and 100 that have exactly three factors are 4, 9, 25 and 49.

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ANSWER:

The numbers that have more than two factors are known as composite numbers.
Yes, a composite number can be odd.
The smallest odd composite number is 9.

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ANSWER:

Two consecutive odd prime numbers are called twin primes.
The pairs of twin primes between 50 to 100 are (59, 61) and (71, 73).

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ANSWER:

If two numbers do not have a common factor other than 1, they are said to be co-primes.

Five pairs of co primes: (i) 2 and 3 (ii) 3 and 4 (iii) 4 and 5 (iv) 4 and 9 (v) 8 and 15

No, co–primes are not always primes.

For example, 3 and 4 are co-prime numbers, where 3 is a prime number and 4 is not a prime number.

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ANSWER:

(i) 36
36 as the sum of two odd prime numbers is (36 = 31 + 5).
(ii) 42
42 as the sum of two odd prime numbers is (42 = 31 + 11).
(iii) 84
84 as the sum of two odd prime numbers is (84 = 41 + 43).
(iv) 98
98 as the sum of two odd prime numbers is (98 = 31 + 67).

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ANSWER:

(i) 31
31 can be expressed as the sum of three odd prime numbers as (31 = 5 + 7 + 19).
(ii)) 35
35 can be expressed as the sum of three odd prime numbers as (35 = 17 + 13 + 5).
(iii) 49
49 can be expressed as the sum of three odd prime numbers as (49 = 13 + 17 + 19).
(iv) 63
63 can be expressed as the sum of three odd prime numbers as (63 = 29 + 31 + 3).

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ANSWER:

(i) 36
36 can be expressed as the sum of twin primes as (36 = 17 + 19).

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(ii) 84
84 can be expressed as the sum of twin primes as (84 = 41 + 43).
(iii) 120
120 can be expressed as the sum of twin primes as (120 = 59 + 61).
(iv) 144
144 can be expressed as the sum of twin primes as (144 = 71 + 73).

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ANSWER:

(i) False. 2 is the smallest prime number.
(ii) False. 2 is an even prime number.
(iii) False. 3 and 7 are two prime numbers and their sum is 10, which is even.
(iv) False. 4 and 9 are co-primes but neither of them is a prime number.

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ANSWER:

A number is divisible by 2 if its ones digit is 0, 2, 4, 6 or 8.
(i) Since the digit in the ones place in 26250 is 0, it is divisible by 2
(ii) Since the digit in the ones place in 69435 is not 0, 2, 4, 6 or 8, it is not divisible by 2.
(iii) Since the digit in the ones place in 59628 is 8, it is divisible by 2.
(iv) Since the digit in the ones place in 789403 is not 0, 2, 4, 6, or 8, it is not divisible by 2.
(v) Since the digit in the ones place in 357986 is 6, it is divisible by 2.
(vi) Since the digit in the ones place in 367314 is 4, it is divisible by 2.

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ANSWER:

A number is divisible by 3 if the sum of its digits is divisible by 3.
(i) 733 is not divisible by 3 because the sum of its digits, 7 + 3 + 3, is 13, which is not divisible by 3.
(ii) 10038 is divisible by 3 because the sum of its digits, 1 + 0 + 0 + 3 + 8, is 12, which is

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divisible by 3.
(iii) 20701 is not divisible by 3 because the sum of its digits, 2 + 0 + 7 + 0 + 1, is 10, which is not divisible by 3.
(iv) 524781 is divisible by 3 because the sum of its digits, 5 + 2 + 4 + 7 + 8 + 1, is 27, which is divisible by 3.
(v) 79124 is not divisible by 3 because the sum of its digits, 7 + 9 + 1 + 2 + 4, is 23, which is not divisible by 3.
(vi) 872645 is not divisible by 3 because the sum of its digits, 8 + 7 + 2 + 6 + 4 + 5, is 32, which is not divisible by 3.

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ANSWER:

A number is divisible by 4 if the number formed by the digits in its tens and units place is divisible by 4.

(i) 618 is not divisible by 4 because the number formed by its tens and ones digits is 18, which is not divisible by 4.
(ii) 2314 is not divisible by 4 because the number formed by its tens and ones digits is 14, which is not divisible by 4.
(iii) 63712 is divisible by 4 because the number formed by its tens and ones digits is 12, which is divisible by 4.
(iv) 35056 is divisible by 4 because the number formed by its tens and ones digits is 56, which is divisible by 4.
(v) 946126 is not divisible by 4 because the number formed by its tens and ones digits is 26, which is not divisible by 4.
(vi) 810524 is divisible by 4 because the number formed by its tens and ones digits is 24, which is divisible by 4.

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ANSWER:

A number is divisible by 5 if its ones digit is either 0 or 5.

(i) 4965 is divisible by 5, because the digit at its ones place is 5.

(ii) 23590 is divisible by 5, because the digit at its ones place is 0.

(iii) 35208 is not divisible by 5, because the digit at its ones place is 8.

(iv) 723405 is divisible by 5, because the digit at its ones place is 5.

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(v) 124684 is not divisible by 5, because the digit at its ones place is 4.

(vi) 438750 is divisible by 5, because the digit at its ones place is 0.

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ANSWER:

A number is divisible by 6 if it is divisible by both 2 and 3.

i) Since 2070 is divisible by 2 and 3, it is divisible by 6.
Checking the divisibility by 2: Since the number 2070 has 0 in its units place, it is divisible by 2.
Checking the divisibility by 3: The sum of the digits of 2070, 2 + 0 + 7 + 0, is 9, which is divisible by 3. So, it is divisible by 3.

(ii) Since 46523 is not divisible by 2, it is not divisible by 6.

Checking the divisibility by 2: Since the number 46523 has 3 in its units place, it is not divisible by 2.

(iii) Since 71232 is divisible by both 2 and 3, it is divisible by 6.

Checking the divisibility by 2: Since the number has 2 in its units place, it is divisible by 2.
Checking the divisibility by 3: The sum of the digits of the number, 7 + 1 + 2 + 3 + 2, is 15, which is divisible by 3. So, the number is divisible by 3.

(iv) Since 934706 is not divisible by 3, it is not divisible by 6.
Checking the divisibility by 3: Since the sum of the digits of the number, 9 + 3 + 4 + 7 + 0 + 6, is 29, which is not divisible by 3. So, the number is not divisible by 3.

(v) Since 251780 is not divisible by 3, it is not divisible by 6.
Checking the divisibility by 3: The sum of the digits of the number, 2 + 5 + 1 + 7 + 8 + 0, is 23, which is not divisible by 3. So, the number is not divisible by 3.

(vi) Since 872536 is not divisible by 3, it is not divisible by 6.

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Checking the divisibility by 3: The sum of the digits of the number, 8 + 7 + 2 + 5 + 3 + 6, is 31, which is not divisible by 3. So, the number is not divisible by 3.

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ANSWER:

To determine if a number is divisible by 7, double the last digit of the number and subtract it from the number formed by the remaining digits. If their difference is a multiple of 7, the number is divisible by 7.

(i) 826 is divisible by 7.
We have $82 - 2 \times 6 = 70$, which is a multiple of 7.

(ii) 117 is not divisible by 7.
We have $11 - 2 \times 7 = -3$, which is not a multiple of 7.

(iii) 2345 is divisible by 7.
We have $234 - 2 \times 5 = 224$, which is a multiple of 7.

(iv) 6021 is divisible by 7.
We have $602 - 2 \times 1 = 600$, which is not a multiple of 7.

(v) 14126 is divisible by 7.
We have $1412 - 2 \times 6 = 1400$, which is a multiple of 7.

(vi) 25368 is divisible by 7.
We have $2536 - 2 \times 8 = 2520$, which is a multiple of 7.

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ANSWER:

A number is divisible by 8 if the number formed by the last three digits (digits in the hundreds, tens and units places) is divisible by 8.

(i) 9364 is not divisible by 8.
It is because the number formed by its hundreds, tens and ones digits, i.e., 364, is not divisible by 8.

(ii) 2138 is not divisible by 8.
It is because the number formed by its hundreds, tens and ones digits, i.e., 138, is not divisible by 8.

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(iii) 36792 is divisible by 8.
It is because the number formed by its hundreds, tens and ones digits, i.e., 792, is divisible by 8.

(iv) 901674 is not divisible by 8.
It is because the number formed by its hundreds, tens and ones digits, i.e., 674, is not divisible by 8.

(v) 136976 is divisible by 8.
It is because the number formed by its hundreds, tens and ones digits, i.e., 976, is divisible by 8.

(vi) 1790184 is divisible by 8.
It is because the number formed by its hundreds, tens and ones digits, i.e., 184, is divisible by 8.

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ANSWER:

A number is divisible by 9 if the sum of its digits is divisible by 9.

(i) 2358 is divisible by 9, because the sum of its digits, 2 + 3 + 5 + 8, is 18, which is divisible by 9.

(ii) 3333 is not divisible by 9, because the sum of its digits, 3 + 3 + 3 + 3, is 12, which is not divisible by 9.

(iii) 98712 is divisible by 9, because the sum of its digits, 9 + 8 + 7 + 1 + 2, is 27, which is divisible by 9.

(iv) 257106 is not divisible by 9, because the sum of its digits, 2 + 5 + 1 0 + 6, is 21, which is not divisible by 9.

(v) 647514 is divisible by 9, because the sum of its digits, 6 + 4 + 7 + 5 + 1 + 4, is 27, which is divisible by 9.

(vi) 326999 is not divisible by 9, because the sum of its digits, 3 + 2 + 6 + 9 + 9 + 9, is 38, which is not divisible by 9.

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ANSWER:

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

(i) 5790 is divisible by 10, because its ones digit is 0.
(ii) 63215 is not divisible by 10, because its ones digit is 5, not 0.
(iii) 55555 is not divisible by 10, because its ones digit is 5, not 0.

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ANSWER:

A number is divisible by 11 if the difference of the sum of its digits at odd places and the sum of its digits at even places is either 0 or a multiple of 11.

(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.

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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.

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ANSWER:

(i) 272̲4
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) 53̲046
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) 81̲711
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) 62̲235
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) 234̲117
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) 6̲21054
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

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ANSWER:

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(i) 65$\underline{2}$5
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) 2$\underline{7}$135
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) 91$\underline{4}$67
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) 667$\underline{8}$1
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) 835$\underline{6}$86
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

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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

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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.

(iv) 467*91
Sum of the digits at odd places 1 + * + 6 = 7 + *
Sum of the digits at even places 9 + 7 + 4 = 20
Difference = sum of odd terms – sum of even terms
= (7 + *) − 20
= * − 13
Now, (* −13) will be divisible by 11 if * = 2.
i.e., 2− 13 = −11
−11 is divisible by 11.
∴ * = 2
Hence, the number is 467291.

(v) 1723*4
Sum of the digits at odd places 4+ 3+ 7= 14
Sum of the digits at even places *+2+1 = 3 + *

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Difference = sum of odd terms – sum of even terms
= 14 – (3 + *)
= 11 − *
Now, (11 − *) will be divisible by 11 if * = 0.
i.e., 11 − 0 = 11
11 is divisible by 11.
∴ * = 0
Hence, the number is 172304.

(vi) 9*8071
Sum of the digits at odd places 1+0+* = 1 + *
Sum of the digits at even places 7 + 8 + 9 = 24
Difference = sum of odd terms – sum of even terms
=1 + * – 24
= * – 23
Now, (* − 23) will be divisible by 11 if * = 1.
i.e., 1 − 23 = −22
−22 is divisible by 11.
∴ * = 1
Hence, the number is 918071.

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ANSWER:

(i) 10000001 by 11
10000001 is divisible by 11.
Sum of digits at odd places = (1 + 0 + 0 + 0) = 1
Sum of digits at even places = (0 + 0 + 0 + 1) = 1
Difference of the two sums = (1 − 1) = 0, which is divisible by 11.

(ii) 19083625 by 11
19083625 is divisible by 11.
Sum of digits at odd places = (5 + 6 + 8 + 9) = 28
Sum of digits at even places = (2 + 3 + 0 + 1) = 6
Difference of the two sums = (28 − 6) = 22, which is divisible by 11.

(iii) 2134563 by 9
2134563 is not divisible by 9.
It is because the sum of its digits, 2 + 1 + 3 + 4 + 5 + 6 + 3, is 24, which is not divisible by 9.

(iv) 10001001 by 3

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10001001 is divisible by 3.
It is because the sum of its digits, 1 + 0 + 0 + 0 + 1 + 0 + 0 + 1, is 3, which is divisible by 3.

(v) 10203574 by 4
10203574 is not divisible by 4.
It is because the number formed by its tens and the ones digits is 74, which is not divisible by 4.
(vi) 12030624 by 8
12030624 is divisible by 8.
It is because the number formed by its hundreds, tens and ones digits is 624, which is divisible by 8.

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ANSWER:

A number between 100 and 200 is a prime number if it is not divisible by any prime number less than 15.
Similarly, a number between 200 and 300 is a prime number if it is not divisible by any prime number less than 20.

(i) 103 is a prime number, because it is not divisible by 2, 3, 5, 7, 11 and 13.
(ii) 137 is a prime number, because it is not divisible by 2, 3, 5, 7 and 11.
(iii) 161 is a not prime number, because it is divisible by 7.
(iv) 179 is a prime number, because it is not divisible by 2, 3, 5, 7, 11 and 13.
(v) 217 is a not prime number, because it is divisible by 7.
(vi) 277 is a prime number, because it is not divisible by 2, 3, 5, 7, 11, 13, 17 and 19.
(vii) 331 is a prime number, because it is not divisible by 2, 3, 5, 7, 11, 13, 17 and 19.
(viii) 397 is a prime number, because it is not divisible by 2, 3, 5, 7, 11, 13, 17 and 19.

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ANSWER:

(i) 14 is divisible by 2, but not by 4.
(ii) 12 is divisible by 4, but not by 8.
(iii) 24 is divisible by both 2 and 8, but not by 16.
(iv) 30 is divisible by both 3 and 6, but not by 18.

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ANSWER:

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(i) If a number is divisible by 4, it must be divisible by 8. False
Example: 28 is divisible by 4 but not divisible by 8.

(ii) If a number is divisible by 8, it must be divisible by 4. True
Example: 32 is divisible by both 8 and 4.

(iii) If a number divides the sum of two numbers exactly, it must exactly divide the numbers separately. False
Example: 91 (51 + 40) is exactly divisible by 13. However, 13 does not exactly divide 51 and 40.

(iv) If a number is divisible by both 9 and 10, it must be divisible by 90. True
Example: 900 is both divisible by 9 and 10. It is also divisible by 90.

(v) A number is divisible by 18 if it is divisible by both 3 and 6. False
A number has to be divisible by 9 and 2 to be divisible by 18.
Example: 48 is divisible by 3 and 6, but not by 18.

(vi) If a number is divisible by 3 and 7, it must be divisible by 21. True
Example: 42 is divisible by both 3 and 7. It is also divisible by 21.

(vii) The sum of consecutive odd numbers is always divisible by 4. True
Example: 11 and 13 are consecutive odd numbers.
11 + 13 = 24, which is divisible by 4.

(viii) If a number divides two numbers exactly, it must divide their sum exactly. True
Example: 42 and 56 are exactly divisible by 7.
42+56 = 98, which is exactly divisible by 7.

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ANSWER:

We use the division method as shown below:

212 26 33 1212 26 33 1

$\therefore 12 = 2 \times 2 \times 3$

$= 2^2 \times 3$

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ANSWER:

We will use the division method as shown below:

218 39 33 1218 39 33 1

$\therefore 18 = 2 \times 3 \times 3$

$= 2 \times 3^2$

Page No 32:

ANSWER:

We will use the division method as shown below:

248 224 212 26 33 1 248 224 212 26 33 1

$\therefore 48 = 2 \times 2 \times 2 \times 2 \times 3$

$= 2^4 \times 3$

Page No 32:

ANSWER:

We will use the division method as shown below:

256 228 214 7256 228 214 7

$\therefore 56 = 2 \times 2 \times 2 \times 7$

$= 2^3 \times 7$

Page No 32:

ANSWER:

We will use the division method as shown below:

290 345 315 55 1 290 345 315 55 1

$\therefore 90 = 2 \times 3 \times 3 \times 5$

$= 2 \times 3^2 \times 5$

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Page No 32:

ANSWER:

We will use the division method as shown below:

2136 268 234 1717 1 2136 268 234 1717 1

$\therefore 136 = 2 \times 2 \times 2 \times 17$

$= 2^3 \times 17$

Page No 32:

ANSWER:

We will use the division method as shown below:

2252 2126 363 321 77 1 2252 2126 363 321 77 1

$\therefore 252 = 2 \times 2 \times 3 \times 3 \times 7 \times 1$

$= 2^2 \times 3^2 \times 7 \times 1$

Page No 32:

ANSWER:

We will use the division method as shown below:

2420 2210 3105 735 55 1 2420 2210 3105 735 55 1

$\therefore 420 = 2 \times 2 \times 3 \times 7 \times 5 \times 1$

$= 2^2 \times 3 \times 5 \times 7$

Page No 32:

ANSWER:

We will use the division method as shown below:

7637 791 1313 1 7637 791 1313 1

$\therefore 637 = 7 \times 7 \times 13$

$= 7^2 \times 13$

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Page No 32:

ANSWER:

We will use the division method as shown below:

3945 3315 3105 535 77 1 3945 3315 3105 535
77 1

∴ 945 = 3 × 3 × 3 × 5 × 7 × 1
= 3^3 × 5 × 7

Page No 32:

ANSWER:

We will use the division method as shown below:

21224 2612 2306 3153 351 17 17 1 21
224 2612 2306 3153 351 17 17 1
∴ 1224 = 2 × 2 × 2 × 3 ×3 × 17
= 2^3 × 3^2 × 17

Page No 32:

ANSWER:

We will use the division method as shown below:

31323 3441 3147 749 77 131323 3441 3147 749 77
1
∴ 1323 = 3 × 3 × 3 ×7 × 7 × 1
=3^3 × 7^2

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ANSWER:

We will use the division method as shown below:

28712 24356 22178 31089 3363 11121 1111 1 28712 2
4356 22178 31089 3363 11121 1111 1

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$\therefore 8712 = 2 \times 2 \times 2 \times 3 \times 3 \times 11 \times 11$

$= 2^3 \times 3^2 \times 11^2$

Page No 32:

ANSWER:

We will use the division method as shown below:

79317 111331 11121 1111 1 79317 111331 11121 1111

1

$\therefore 9317 = 7 \times 11 \times 11 \times 11$

$= 7 \times 11^3$

Page No 32:

ANSWER:

We will use the division method as shown below:

31035 3345 5115 2323 1 31035 3345 5115 2323

1

$\therefore 1035 = 3 \times 3 \times 5 \times 23$

$= 3^2 \times 5 \times 23$

Page No 32:

ANSWER:

We will use the division method as shown below:

31197 3399 7133 1919 1 31197 3399 7133 1919 1

$\therefore 1197 = 3 \times 3 \times 7 \times 19$

$= 3^2 \times 7 \times 19$

Page No 32:

ANSWER:

We will use the division method as shown below:

34641 71547 13221 1717 1 34641 71547 13221 1717

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1

∴ 4614 = 3 × 7 × 13 × 17

Page No 32:

ANSWER:

We will use the division method as shown below:

34335 51445 17289 1717 1 34335 51445 17289 1717 1

∴ 4335 = 3 × 5 × 17 × 17

$= 3 \times 5 \times 17^2$

Page No 32:

ANSWER:

We will use the division method as shown below:

32907 3969 17323 1919 1 32907 3969 17323 1919 1

∴ 2907 = 3 × 3 × 17 × 19

$= 3^2 \times 17 \times 19$

Page No 32:

ANSWER:

We will use the division method as shown below:

513915 112783 11253 23 23 1 513915 112783 11253 23 23 1

∴ 13915 = 5 × 11 × 11 × 23

$= 3 \times 11^2 \times 23$

Page No 36:

ANSWER:

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The given numbers are 84 and 98.

We have:

284 242 321 77 1284 242 321 77 1298 749 77 1298 749 77 1

$84 = 2 \times 2 \times 3 \times 7 = 2^2 \times 3 \times 7$
$98 = 2 \times 7 \times 7 = 2 \times 7^2$

∴ HCF of the given numbers = $2 \times 7 = 14$

Page No 36:

ANSWER:

The given numbers are 170 and 238.

We have:

2170 585 1717 1 2170 585 1717 1 2238 7119 17 17 1 2238 7119 1717 1

$170 = 2 \times 5 \times 17$
$238 = 2 \times 7 \times 17$

∴ H.C.F. of the given numbers = $2 \times 17 = 34$

Page No 36:

ANSWER:

The given numbers are 504 and 980.

We have:

2504 2252 2126 363 321 77 1 2504 2252 2126 363 321 77 1 2980 2490 5245 749 77 1 2980 2490 5245 749 77 1

$504 = 2 \times 2 \times 2 \times 3 \times 3 \times 7 = 2^3 \times 3^2 \times 7$
$980 = 2 \times 2 \times 5 \times 7 \times 7 = 2^2 \times 5 \times 7^2$
∴ HCF of the given numbers = $2^2 \times 7 = 28$

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Page No 36:

ANSWER:

The given numbers are 72, 108 and 180

We have:

272 236 218 39 33 1 272 236 218 39 33 1
2108 254 327 39 33 1 2108 254 327 39 33 1 2
180 2 90 345 315 5 5 12180 2 90 345 315 5 5
1

Now, $72=2 \times 2 \times 2 \times 3 \times 3 = 2^3 \times 3^2$
$108 = 2 \times 2 \times 3 \times 3 \times 3 = 2^2 \times 3^3$
$180 = 2 \times 2 \times 3 \times 3 \times 5 = 2^2 \times 3^2 \times 5$
$\therefore$ HCF $= 2^2 \times 3^2 = 36$

Page No 36:

ANSWER:

The given numbers are 84, 120 and 138.

We have:

284 242 321 77 1 284 242 321 77 1 2120
260 230 315 55 1 2120 260 230 315 55 1
2138 369 2323 1 2138 369 2323 1

Now, $84 = 2 \times 2 \times 3 \times 7$
$120 = 2 \times 2 \times 2 \times 3 \times 5$
$138 = 2 \times 3 \times 23$
$\therefore$ HCF $= 2 \times 3 = 6$

Page No 36:

ANSWER:

The given numbers are 106, 159 and 371.
We have:

2106 5353 1 2106 5353 1 3159 5353 1 3159 5
353 1 7371 5353 1 7371 5353 1

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Now, 106 = 2 × 53
159 = 3 × 53
371 = 7 × 53
∴ HCF = 53

Page No 36:

ANSWER:

Given numbers are 272 and 425.

We have:

2272 2136 268 234 1717 1 2272 2136 268 234
1717 1 5425 585 1717 1 5425 585 1717 1

Now, 272 = 2 × 2× 2 × 2 × 17
425 = 5 × 5 × 17
∴ The required HCF is 17.

Page No 36:

ANSWER:

The given numbers are 144, 252 and 630.
We have:

2144 272 236 218 39 33 1 2144 272 236 218
39 33 1 2252 2126 363 321 77 1 2
252 2126 363 321 77 1 2630 3315 3105 535
77 1 2630 3315 3105 535 77 1

Now, 144 = 2 × 2× 2 × 2× 3 × 3
252 = 2 ×2 × 3× 3 × 7
630 = 2 ×3 × 3× 5 × 7
∴ HCF = 2 × 3 × 3 =18

Page No 36:

ANSWER:

The given numbers are 1197, 5320 and 4389.

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We have:

31197 3399 7133 1919 1 31197 3399 713
3 1919 1 25320 22660 21330 5665 7133
1919 1 25320 22660 21330 5665 7133
1919 1 34389 71463 19209 1111 1 34389
71463 19209 1111 1

Now, 1197 = 3 × 3× 7× 19 = 3^2 × 7 × 19
5320 = 2 × 2 × 2× 5 × 7 × 19 = 2^3 × 5 × 7 × 19
4389 = 3 ×7 × 19 × 11
∴ Required HCF = 19 × 7 = 133

Page No 36:

ANSWER:

We have:

∴ The HCF of 58 and 70 is 2.

Page No 36:

ANSWER:

The given numbers are 399 and 437.

We have:

$$
\begin{array}{r}
1 \\
399\overline{)\,437} \\
-399 \\
\hline
38\overline{)\,399}\,(10 \\
-380 \\
\hline
19\overline{)\,38}\,(2 \\
-38 \\
\hline
0
\end{array}
$$

∴ The HCF is 19.

Page No 36:

ANSWER:

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The given numbers are 1045 and 1520.
We have:

$$
\begin{array}{r}
1 \\
1045\overline{)\,1520} \\
-1045 \\
\hline
475\overline{)\,1045}\,(2 \\
-950 \\
\hline
95\overline{)\,475}\,(5 \\
475 \\
\hline
0
\end{array}
$$

∴ The HCF of 1045 and 1520 is 95.

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ANSWER:

The given numbers are 1965 and 2096.

We have:

∴ The HCF is 131.

Page No 36:

ANSWER:

The given numbers are 2241and 2341.
We have:

$$
\begin{array}{r}
1 \\
2241\overline{)\,2324} \\
-2241 \\
\hline
83\overline{)\,2241}\,(27 \\
-2241 \\
\hline
0
\end{array}
$$

∴ HCF = 83

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ANSWER:

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The given numbers are 658, 940 and 1128.

First we will find the HCF of 658 and 940.

$$
\begin{array}{r}
1 \\
658\overline{)\,940} \\
-658 \\
\hline
282\overline{)\,658}\,(2 \\
-564 \\
\hline
94\overline{)\,282}\,(3 \\
-282 \\
\hline
0
\end{array}
$$

Thus, the HCF of 658 and 940 is 94.

Now, we will find the HCF of 94 and 1128.

$$
\begin{array}{r}
1 \\
94\overline{)\,1128} \\
-1128 \\
\hline
0
\end{array}
$$

Thus, the HCF of 94 and 1128 is 94.

∴ The HCF of 658, 940 and 1128 is 94.

Page No 36:

ANSWER:

The given numbers are 754, 1508 and 1972.

First, we will find the HCF of 754 and 1508.

So, the HCF of 754 and 1508 is 754.

Now, we will find the HCF of 754 and 1972.

So, the HCF of 754 and 1972 is 58.

∴ The HCF of 754, 1058 and 1972 is 58.

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ANSWER:

The given numbers are 391, 425 and 527.
First, we will find the HCF of 391 and 425.

So, the HCF of 391 and 425 is 17.
Now, we will find the HCF of 17 and 527.

So, the HCF of 17 and 527 is 17.
∴ The HCF of 391, 425 and 527 is 17.

Page No 36:

ANSWER:

The given numbers are 1794, 2346 and 4761.
First, we will find the HCF of 1794 and 2346.

So, the HCF of 1794 and 2346 is 138.
Now, we will find the HCF of 138 and 4761.

So, the HCF of 138 and 4761 is 69.

∴ The HCF of 1794, 2346 and 4761 is 69.

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ANSWER:

The given numbers are 59 and 97.

$59 = 59 \times 1$
$97 = 97 \times 1$

∴ HCF = 1

Since 59 and 97 does not have any common factor other than 1, the two numbers are co-primes.

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ANSWER:

The given numbers are 161 and 192.
We have:
7161 2323 1 7161 2323 1 2192 296 248 224 212 26
32192 296 248 224 212 26 3

Now, $161 = 7 \times 23 \times 1$
$192 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 = 2^6 \times 3 \times 1$
$\therefore$ HCF = 1
Hence, 161 and 192 are co-primes.

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ANSWER:

The given numbers are 343 and 432.
We have:
7343 749 77 1 7343 749 77 1 2432 2216 2108
254 327 39 33 1 2432 2216 2108 254 327
39 33 1

Now, $343 = 7 \times 7 \times 7 \times 1 = 7^3 \times 1$
$432 = 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3 = 2^4 \times 3^3 \times 1$
$\therefore$ HCF =1
Hence, 343 and 432 are co-primes.

Page No 36:

ANSWER:

Given numbers are 512 and 945.
We have:
2512 2256 2128 264 232 216 28 24 22 1 2
512 2256 2128 264 232 216 28 24 22 1
3945 3315 3105 535 Unknown node type: brUnknown node type:
br3945 3315 3105 535
77 77
1 1

$512 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 = 2^9$
$945 = 3 \times 3 \times 3 \times 5 \times 7 = 3^3 \times 5 \times 7$

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Thus, the HCF of 512 and 945 is 1.
∴ 512 and 945 are co-primes.

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ANSWER:

The given numbers are 385 and 621.

5385 777 1111 1 5385 777 1111 1 3621
3207 369 2323 1 3621 3207 369 2323
1

385 = 5 × 7 × 11 × 1
621 = 3 × 3 × 3 × 23 = 3^3 × 23 × 1
∴ HCF = 1

Hence, they are co-primes.

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ANSWER:

The given numbers are 847 and 1014.

7847 11121 1111 1 7847 11121 1111 1 21014 3507
13169 1313 1 21014 3507 13169 1313 1

847 = 7 × 11 × 11 × 1 = 7 × 11^2 × 1
1014 = 2 × 3 × 13 × 13 × 1
∴ HCF = 1
Hence, 847 and 1014 are co-primes.

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ANSWER:

Because the remainder is 6, we have to find the number that exactly divides (615 - 6) and (963 - 6).

Required number = HCF of 609 and 957
6091 957−609 348609(1 −348 261348(1 −261——
– 87261(3 −261——
– 06091 957−609 348609(1 −348 261348(1 −

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261_ 87261(3 −261_ 0

Therefore, the required number is 87.

Page No 36:

ANSWER:

Clearly, we have to find the number which exactly divides (2011 − 9) and (2623 − 5).
So, the required number is the HCF of 2002 and 2618.
20021 2618−2002 6162002(3 −1848
154616(4 −616 020021 2618−2002
6162002(3 −1848 154616(4 −616
0

∴ The required number is 154.

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ANSWER:

Since the respective remainders of 445, 572 and 699 are 4, 5 and 6, we have to find the number which exactly divides (445-4), (572-5) and (696-6).

So, the required number is the HCF of 441, 567 and 693.
Firstly, we will find the HCF of 441 and 567.

∴ HCF = 63

Now, we will find the HCF of 63 and 693.

∴ HCF = 63

Hence, the required number is 63.

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ANSWER:

(i) 161207161207
To reduce the given fraction to its lowest term, we will divide the numerator and the denominator by their HCF.

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Now, we will find the HCF of 161 and 207.

∴ HCF = 23

Dividing the numerator and the denominator by the HCF, we get:

161÷23207÷23=79161÷23207÷23=79

(ii) 517799517799
To reduce the given fraction to its lowest term, we will divide the numerator and the denominator by their HCF.
Now, we will find the HCF of 517 and 799.

∴ HCF = 47

Dividing the numerator and the denominator by the HCF, we get:

517÷47799÷47=1117517÷47799÷47=1117

(iii) 296481296481
To reduce the given fraction to its lowest term, we will divide the numerator and the denominator by their HCF.
Now, we will find the HCF of 296 and 481.

∴ HCF = 37

Dividing the numerator and the denominator by the HCF, we get:

296÷37481÷37=813296÷37481÷37=813

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ANSWER:

The lengths of the three pieces of timber are 42 m, 49 m and 63 m.
The greatest possible length of each plank will be given by the HCF of 42, 49 and 63.

Firstly, we will find the HCF of 42 and 49 by division method.

∴ The HCF of 42 and 49 is 7.

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Now, we will find the HCF of 7 and 63.

∴ The HCF of 7 and 63 is 7.
Therefore, HCF of all three numbers is 7
Hence, the greatest possible length of each plank is 7 m.

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ANSWER:

Three different containers contain 403 L, 434 L and 465 L of milk.

The capacity of the container that can measure the milk in an exact number of times will be given by the HCF of 403, 434 and 465.

∴ HCF = 31

Now, we will find the HCF of 31 and 465.

∴ HCF = 31

Hence, the capacity of the required container is 31 L.

Page No 36:

ANSWER:

Number of apples = 527
Number of pears = 646
Number of oranges = 748
The fruits are to be arranged in heaps containing the same number of fruits.
The greatest number of fruits possible in each heap will be given by the HCF of 527, 646 and 748.

Firstly, we will find the HCF of 527 and 646.

∴ HCF of 527, 646 and 748 = 17

So, the greatest number of fruits in each heap will be 17.

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ANSWER:

7 m = 700 cm
3 m 85 cm = 385 cm
12 m 95 cm = 1295 cm

The required length of the tape that can measure the lengths 700 cm, 385 cm and 1295 cm will be given bu the HCF of 700 cm, 385 cm and 1295 cm.

Evaluating the HCF of 700, 385 and 1295 using prime factorisation method, we have:

$700 = 2 \times 2 \times 5 \times 5 \times 7 = 2^2 \times 5^2 \times 7$

$385 = 5 \times 11 \times 7$

$1295 = 5 \times 7 \times 37$

$\therefore$ HCF = $5 \times 7 = 35$

Hence, the longest tape which can measure the lengths 7 m, 3 m 85 cm and 12 m 95 cm exactly is of 35 cm.

Page No 36:

ANSWER:

Length of the courtyard = 18 m 72 cm = 1872 cm
Breadth of the courtyard = 13 m 20 cm = 1320 cm

Now, maximum edge of the square tile is given by the HCF of 1872 cm and 1320 cm.

13201 1872−1320
216552(2
−120___
2496 (4
013201 1872−1320
216552(2
−120_____
2496 (4
0

5521320(2
−432___
96120(1
5521320(2
−432____
96120(1

−1104 ____
120216(1
−96___
−96__
−1104 _____
120216(1
−96____
−96___

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HCF of 1872 and 1320 = 24
∴ maximum edge of the square tile = 24 cm

Required number of tiles = area of courtyardarea of each square tile=1872×132024×24=4290Required number of tiles = area of courtyardarea of each square tile=1872×132024×24=4290

Page No 36:

ANSWER:

(i) 2 and 3 are two prime numbers.
Now, HCF of 2 and 3 is as follows:
$2 = 2 \times 1$
$3 = 3 \times 1$
∴ HCF = 1

(ii) 4 and 5 are two consecutive numbers.
Now, HCF of 4 and 5 is as follows:
$4 = 2 \times 2 \times 1 = 2^2 \times 1$
$5 = 5 \times 1$
∴ HCF = 1

(iii) 2 and 3 are two co-primes.
Now, HCF of 2 and 3 is as follows:
$2 = 2 \times 1$
$3 = 3 \times 1$
∴ HCF = 1

(iv) 2 and 4 are two even numbers.
Now, HCF of 2 and 4 is as follows:
$2 = 2 \times 1$
$4 = 2 \times 2 \times 1$
∴ HCF = $2 \times 1 = 2$

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ANSWER:

The given numbers are 42 and 63.

We have:

742,6336,9 32,3 22,1 1,1742,6336,9 32,3 22,1 1,1

∴ LCM =7 × 3 × 3 × 2 × 1
=126

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ANSWER:

The given numbers are 60 and 75.

We have:

360,75520,2554,5 24,1 22,1 1,1 360,75520,2554,5 24,1 22,1 1,1

∴ LCM = 3 × 5× 5 × 2 × 2
= 300

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ANSWER:

The given numbers are 12, 18 and 20.
We have:

212,18,202 6,9,10 33,9,5 31,3,5 51,1,5 1,1,1 212,18,202 6,9,10 33,9,5
31,3,5 51,1,5 1,1,1
∴ LCM = 2 × 2 × 3× 3 × 5
= 180

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ANSWER:

The given numbers are 36, 60 and 72.

We have:

236,60,72218,30,36 39,15,18 33,5,6 51,5,2 21,1,2 1,1,1236,60,72218,

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30,36 39,15,18 33,5,6 51,5,2 21,1,2 1,1,1
∴ LCM = 2 × 2 × 2 × 3 × 3 × 5
= 360

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ANSWER:

The given numbers are 36, 40 and 126.

We have:

236,40,126318,20,63 36,20,21 22,20,7 21,10,7 51,5,7 71,1,7 1,1,
1236,40,126318,20,63 36,20,21 22,20,7 21,10,7 51,5,7 71,1,7 1,1,1
∴ LCM = 2 × 3 × 3 ×2 × 2 × 5 × 7
= 2520

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ANSWER:

The given numbers are 16, 28, 40 and 77.
We have:

216,28,40,77 78,14,20,77 28,2,20,11 24,1,10,11 22,1,5,11 51,1,5,11
111,1,1,11 1,1,1,1 216,28,40,77 78,14,20,77 28,2,20,11 24,1,10,11 22,
1,5,11 51,1,5,11 111,1,1,11 1,1,1,1

∴ LCM = 2 × 7 × 2 × 2 × 2 × 5 × 11
= 6160

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ANSWER:

The given numbers are 28, 36, 45 and 60.

We have:

228,36,45,602 14,18,45,3037,9,45,15 37,3,15,5 57,1,5,5 77,1,1,1 1,1,1,1
228,36,45,602 14,18,45,3037,9,45,15 37,3,15,5 57,1,5,5 77,1,1,1 1,1,1,1

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$\therefore$ LCM = 2 × 2 × 3 × 3 × 5 × 7
= 1260

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ANSWER:

The given numbers are 144, 180 and 384.
We have:
2144,180,3842 72,90,192 236,45,96 218,45,48 39,45,24 33,15,8 21,5,8 21,5,4 21,5,2 51,5,1 1,1,1 2144,180,3842 72,90,192 236,45,96 218,45,48 39,45,24 33,15,8 21,5,8 21,5,4 21,5,2 51,5,1 1,1,1

$\therefore$ LCM = $2^7 \times 3^2 \times 5$
= 5760

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ANSWER:

The given numbers are 48, 64, 72, 96 and 108.
We have:

248,64,72,96,108224,32,36,48,54 212,16,18,24,27 26,8,9,12,27 33,4,9,6,27 21,4,3,2,9 21,2,3,1,9 31,1,3,1,9 31,1,1,1,3 1,1,1,1,1248,64,72,96,108224,32,36,48,54 212,16,18,24,27 26,8,9,12,27 33,4,9,6,27 21,4,3,2,9 21,2,3,1,9 31,1,3,1,9 31,1,1,1,3 1,1,1,1,1

$\therefore$ LCM = $2^6 \times 3^3$
= 1728

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ANSWER:

The given numbers are 117 and 221.

We have:

3117 339 1313 1 3117 339 1313 1 132211717 1132211717 1

Now,

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117 = 3 × 3 × 13
221 = 13 × 17

∴ HCF = 13 × 1

Now, LCM = 13 × 17 × 3 × 3
= 1989

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ANSWER:

The given numbers are 234 and 572.

We have:

2234 3117 339 1313 1 2234 3117 339 1313 1 2572 228613143 1111 1 2572 228613143 1111 1

Now, we have:

234 = 2 × 3 × 3 × 13
572 = 2 × 2 × 1 3 × 11

∴ LCM = 13 × 2 × 2 × 11 × 9
= 5148
Also, HCF = 13 × 2 = 26

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ANSWER:

The given numbers are 693 and 1078.

We have:

3693 3231 777 1111 1 3693 3231 777 1111 1 21078 7539 777 1111 1 2107 8 7539 777 1111 1

Now, we have:

693 = 3 × 3 ×7 × 11
1078 = 2 × 7× 7 × 11

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∴ HCF = 7 × 11= 77
Also, LCM = 2 × 3 × 3 ×7 × 7 × 11 = 9702

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ANSWER:

The given numbers are 145 and 232.
We have:
51452929 1 51452929 1 2232 2116 258 2929 1 2232 2116 258 2929 1

Now, we have:

145 = 5 × 29
232 = 2 ×2 × 2 × 29

∴ HCF = 29
Also, LCM = 29 × 2 × 2 × 2 × 5 = 1160

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ANSWER:

The given numbers are 861 and 1353.

We have:

3861 72874141 1 3861 72874141 1 31353114514141 1 31353114514141 1

Now, we have:

861 = 3 × 41 × 7
1353 = 41 × 11 × 3

∴ HCF = 41 × 3 = 123
Also, LCM = 41 × 3 × 11 × 7 = 9471

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ANSWER:

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HCF of 2923 and 3239:

$$
\begin{array}{r}
1 \\
2923\overline{)\,3239} \\
-2923 \\
\hline
316\overline{)\,2923}\,(9 \\
-2844 \\
\hline
79\overline{)\,316}\,(4 \\
-316 \\
\hline
0
\end{array}
$$

∴ HCF = 79

We know that product of two numbers = HCF × LCM

⇒ LCM = Product of two numbersHCF ⇒ LCM = 2923×323979∴ LCM = 119843⇒ LCM = Product of tw o numbersHCF ⇒ LCM = 2923×323979∴ LCM = 119843

Page No 40:

ANSWER:

(i) 87 and 145

We have:
87 = 3 × 29
145 = 5 × 29

HCF = 29
LCM = 29 × 15 × 1 = 435

Now, HCF × LCM = 29 × 435 = 12615
Product of the two numbers = 87 × 145 = 12615

∴ HCF × LCM = Product of the two numbers
Verified.

(ii)186 and 403

186 = 2 × 3 × 31
403 = 31 × 13

HCF = 31

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LCM = 31 × 13 × 6 = 2418

Now, HCF × LCM = 31 × 2418 = 74958
Product of the two numbers = 186 × 403 = 74958

∴ HCF × LCM = Product of the two numbers
Verified.

(iii) 490 and 1155

2	490
5	245
7	49
7	7
	1

5	1155
7	231
3	33
11	11
	1

490 = 7 × 7 × 2 × 5
1155 = 5 × 7 ×3 × 11

HCF = 7 × 5 = 35
LCM = 7 × 5 ×7 × 2 × 3 × 11 = 16170

Now, HCF × LCM = 35 × 16170 = 565950
Product of the two numbers = 490 × 1155 = 565950

∴ HCF × LCM = Product of the two numbers
Verified.

Page No 40:

ANSWER:

Product of the two numbers = 2160
HCF = 12

We know that LCM × HCF = Product of the two numbers

∴ LCM = 216012216012 = 180

Page No 40:

ANSWER:

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Product of the two numbers = 2560
LCM = 320

We know that

LCM × HCF = Product of the two numbers

∴ HCF = $\frac{2560}{320}$2560320 = 8

Page No 40:

ANSWER:

HCF = 145
LCM = 2175
One of the number = 725

We know that
HCF × LCM = Product of two numbers
∴ Other number = $\frac{145\times2175}{725}$145×2175725 = 435

Page No 40:

ANSWER:

HCF = 131
LCM = 8253
One of the number = 917

We know that
LCM × HCF = Product of two numbers
Other number = $\frac{8253\times131917}{}$8253×131917

∴ The other number is 1179.

Page No 40:

ANSWER:

The given numbers are 15, 20, 24, 32 and 36.

The smallest number divisible by the numbers given above will be their LCM.

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215,20,24,32,36315,10,12,16,18 55,10,4,16,6 21,2,4,16,6 21,1,2,8,3 21,1,1,4,3
21,1,1,2,3 31,1,1,1,3 1,1,1,1,1 215,20,24,32,36315,10,12,16,18 55,10,4,16,6
21,2,4,16,6 21,1,2,8,3 21,1,1,4,3 21,1,1,2,3 31,1,1,1,3 1,1,1,1,1

LCM = $2^5 \times 3^2 \times 5$
= 1440
∴ The least number divisible by 15, 20, 24, 32 and 36 is 1440.

Page No 40:

ANSWER:

25, 40 and 60 exactly divides the least number that is equal to their LCM.
So, the required number that leaves 9 as a remainder will be LCM + 9.

Finding the LCM:

225,40,60225,20,30 225,10,15 325,5,15 525,5,5 55, 1, 1 1, 1, 1 225,40,60225,20,
30 225,10,15 325,5,15 525,5,5 55, 1, 1 1, 1, 1
LCM = $2^3 \times 3 \times 5^2 = 600$
∴ Required number = 600 + 9 = 609

Page No 40:

ANSWER:

LCM of 16, 18, 24 and 30:

216,18,24,3028,9,12,15 24,9,6,15 22,9,3,15 31,9,3,15 31,3,1,5 51,1,1,5
1,1,1,1216,18,24,3028,9,12,15 24,9,6,15 22,9,3,15 31,9,3,15 31,3,1,5
51,1,1,5 1,1,1,1

LCM = $2^4 \times 3^2 \times 5 = 720$

We have to find the least five-digit number that is exactly divisible by 16, 18, 24 and 30.
But LCM=720 is a three digit number.

The least five digit number = 10000
Dividing 10000 by 720, we get:
72013 10000 -720 2800 − 2160 640 The greatest four-

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digit number exactly divisible by 720 = 10000-
640 =9360 So, the least five-
digit number exactly divisible by 720 = 9360 + 720
= 10080 72013 10000 -
720 2800 - 2160 640 The greatest four-
digit number exactly divisible by 720 = 10000-
640 =9360 So, the least five-
digit number exactly divisible by 720 = 9360 + 720
= 10080

Page No 40:

ANSWER:

First, we will find the LCM of 9, 12, 15, 18 and 24.
29,12,15,18,2429,6,15,9,1229,3,15,9,639,3,15,9,333,1,5,3,151,1,5,1,1 1,1,1,1,1 ∴ LCM of the numbers = $2^3 \times 3^2 \times 5$ = 360The least six-
digit number = 100000The greatest five-
digit number divisible by 360 will be the quotient of 100000360 mutiplied by 360. 3602777100000 72028002520280 So, the greatest five-
digit number exactly divisible by the given numbers will be360×277 = 99720
29,12,15,18,2429,6,15,9,1229,3,15,9,639,3,15,9,333,1,5,3,151,1,5,1,1 1,1,1,1,1 ∴ LCM of the numbers = 23 × 32 × 5 = 360The least six-
digit number = 100000The greatest five-
digit number divisible by 360 will be the quotient of 100000360 mutiplied by 360. 360277100000 72028002520280 So, the greatest five-
digit number exactly divisible by the given numbers will be360×277 = 99720

Page No 40:

ANSWER:

Three bells toll at intervals of 9, 12 and, 15 minutes.
The time when they will toll together again is given by the LCM of 9, 12 and 15.

39,12,1533,4,5 51,4,5 21,4,1 21,2,1 1,1,139,12,1533,4,5 51,4,5 21,4,1 21,2,1 1,1,1

Required time = $2^2 \times 3^2 \times 5$
= 180 minutes
=3 h
If they start tolling together, they will toll together again after 3 h.

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Page No 40:

ANSWER:

From the starting point, they will step together again when they travel a distance that is exactly divisible by the lengths of their steps.
The least distance from the starting point where they will step together will be given by the LCM of 36, 48 and 54.

236,48,54218,24,2739,12,2733,4,931,4,321,4,1 21,2,1 1,1,1236,48,54218,24,2739,12,2733,4,931,4,321,4,1 21,2,1 1,1,1

The required distance = $2 \times 2 \times 3 \times 3 \times 3 \times 2 \times 2$
$= 16 \times 27$
$= 432$ cm
∴ They will step together again at a distance of 432 cm from the starting point.

Page No 40:

ANSWER:

The time when the lights will change simultaneously again will be quantity which is exactly divisible by 48, 72 and 108. The least time when they change simultaneously will be given by their LCM.

248,72,108224,36,54212,18,2726,9,2733,9,2731,3,931,1,3 1,1,1248,72,108224,36,54212,18,2726,9,2733,9,2731,3,931,1,3 1,1,1
Required time = $2^4 \times 3^3$
= 432 seconds
= 7 min 12 seconds
So, the lights will change simultaneously at 8:07:12 a.m.

Page No 40:

ANSWER:

The length of the required rope must be such that it is exactly divisible by 45, 50 and 75.
The least length will be given by the LCM of 45, 50 and 75.

245,50,75345,25,75315,25,2555,25,2551,5,5 1,1,1245,50,75345,25,75315,25,2555,25,2551,5,5 1,1,1

Required length = $3 \times 3 \times 5 \times 5 \times 2$

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= 450 cm

So, the minimum length of the rope that can be measured by the full length of each of the three rods is 450 cm.

Page No 40:

ANSWER:

The LCM of the time intervals of the beeps will give the time when the electronic devices will beep together.

LCM of 15 and 20:

515,2033,421,421,2 1,1515,2033,421,421,2 1,1

Required time = 5 × 3 × 2 × 2

= 60 min

So, they will beep simultaneously after 60 min or 1 h.

∴ They will beep together again at 7:00 a.m.

Page No 41:

ANSWER:

Distance covered by a wheel for one complete revolution = circumference of the wheel

All the wheels will make complete numbers of revolutions when the distances covered by them is equal to their LCM.

550,60,75,100510,12,15,2022,12,3,421,6,3,231,3,3,1 1,1,1,1 550,60,75,100510,12,15,2022,12,3,421,6,3,231,3,3,1 1,1,1,1

Required least distance = 5 × 5 ×2 × 2 × 3

= 25 × 4 × 3

= 300 cm = 3 m

So, each wheel will make a complete number of revolutions after travelling 3 m.

Page No 41:

ANSWER:

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(c) 83479560

A number is divisible by 3 if the sum of its digits is divisible by 3.

a) Consider the number 24357806.
Sum of its digits = 2 + 4 + 3 + 5+ 7 + 8 + 0 + 6 = 35, which is not divisible by 3.
So, 2357806 is not divisible by 3.

b) Consider the number 35769812.
Sum of its digits = 3 + 5 + 7 + 6 +9 + 8 + 1 + 2 = 41, which is not divisible by 3.
So, 35769812 is not divisible by 3.

c) Consider the number 83479560.
Sum of its digits = 8 + 3 + 4+ 7 + 9 + 5 + 6 + 0 = 42, which is divisible by 3.
So, 2357806 is divisible by 3.

d) Consider the number 3336433.
Sum of its digits = 3 + 3 +3 + 6 +4 + 3 +3 = 25, which is not divisible by 3.
So, 3336433 is not divisible by 3.

Page No 41:

ANSWER:

(a) 8576901

A number is divisible by 9 if the sum of its digits is divisible by 9.

a) Consider the number 8576901.
Sum of its digits = 8 + 5 +7 + 6 + 9+ 0 + 1 = 36, which is divisible by 9.
So, 8576901 is divisible by 9.

b) Consider the number 96345210.
Sum of its digits = 9 + 6 + 3+ 4 + 5+ 2 + 1 + 0 = 30, which is not divisible by 9.
So, 96345210 is not divisible by 9.

c) Consider the number 67594310.
Sum of its digits = 6 + 7 + 5 + 9 + 4 + 3 + 1 + 0 = 35, which is not divisible by 9.
So, 67594310 is not divisible by 9.

Page No 41:

ANSWER:

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(d)87941032

A number is divisible by 4 if the number formed by its digits in the tens and ones places is divisible by 4.

(a) 78653234
Consider the number 78653234.
Here, the number formed by the tens and the ones digit is 34, which is not divisible by 4.
Therefore, 78653234 is not divisible by 4.

(b) 98765042
Consider the number 98765042.
Here, the number formed by the tens and the ones digit is 42, which is not divisible by 4.
Therefore, 98765042 is not divisible by 4.

(c) 24689602
Consider the number 24689602.
Here, the number formed by the tens and the ones digit is 02, which is not divisible by 4.
Therefore, 24689602 is not divisible by 4

(d) 87941032
Consider the number 87941032.
Here, the number formed by the tens and ones digit is 32, which is divisible by 4.
Therefore, 87941032 is divisible by 4.

Page No 41:

ANSWER:

(b) 37450176

A number is divisible by 8 if the number formed by its digits in hundreds, tens and ones places is divisible by 8.

(a) 96354142
Consider the number 96354142.
Here, the number formed by the digits in hundreds, tens and ones places is 142, which is clearly not divisible by 8.
Therefore, 96354142 is not divisible by 8.

(b) 37450176
Consider the number 37450176.

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The number formed by the digits in hundreds, tens and ones places is 176, which is clearly divisible by 8.
Therefore, 37450176 is divisible by 8.

(c) 57064214
Consider the number 57064214.
Here, the number formed by the digits in hundreds, tens and ones places is 214, which is clearly not divisible by 8.
Therefore, 57064214 is not divisible by 8.

Page No 41:

ANSWER:

(a) 8790432 and (c) 85492014

A number is divisible by 6, if it is divisible by both 2 and 3.

(a) 8790432
Consider the number 8790432.
The number in the ones digit is 2.
Therefore, 8790432 is divisible by 2.
Now, the sum of its digits (8+7+9+0+2+3+2) is 33. Since 33 is divisible by 3, we can say that 8790432 is also divisible by 3.
Since 8790432 is divisible by both 2 and 3, it is also divisible by 6.

(b) 98671402
Consider the number 98671402.
The number in the ones digit is 2.
Therefore, 98671402 is divisible by 2.
Now, the sum of its digits (9+8+6+7+1+4+0+2) is 37. Since 37 is not divisible by 3, we can say that 98671402 is also not divisible by 3.
Since 98671402 is not divisible by both 2 and 3, it is not divisible by 6.

(c) 85492014
Consider the number 85492014.
The number in the ones digit is 4.
Therefore, 85492014 is divisible by 2.
Now, the sum of its digits (8+5+4+9+2+0+1+4) is 33. Since 33 is divisible by 3, we can say that 85492014 is also divisible by 3.
Since 85492014 is divisible by both 2 and 3, it is also divisible by 6.

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ANSWER:

(c) 22222222
A number is divisible by 11, if the difference of the sum of its digits in odd places and the sum of the digits in even places (starting from ones place) is either 0 or a multiple of 11.

(a) 3333333
Consider the number 3333333.
Sum of its digits in odd places (3 + 3 + 3 + 3) = 12
Sum of its digits in even places (3 + 3 + 3) = 9
Difference of the two sums = 12 − 9 = 3
Since this number (3) is not divisible by 11, 3333333 is not divisible by 11.

(b) 1111111
Consider the number 1111111.
Sum of its digits in odd places (1 + 1 + 1 + 1) = 4
Sum of its digits in even places (1 + 1 + 1) = 3
Difference of the two sums = 4 − 3 = 1
Since this number (1) is not divisible by 11, 1111111 is also not divisible by 11.

(c) 22222222
Consider the number 22222222.
Sum of its digits in odd places (2 + 2 + 2 + 2)= 8
Sum of its digits in even places (2 + 2 + 2 + 2) = 8
Difference of the two sums = 8 − 8 = 0
Since this number (0) is divisible by 11, 22222222 is also divisible by 11.

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ANSWER:

(d) 97

(a) 81 is not a prime number because 81 can be written as 9×9.
(b) 87 is not a prime number because 87 can be written as 29×3.
(c) 91 is not a prime number because 91 can be written as 13×7.
(d) 97 is a prime number.

Page No 41:

ANSWER:

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(c) 179

(a) 117 is not a prime number because 117 can be written as 3 × 39.
(b) 171 is not a prime number because 171 can be written as 19×9.
(c) 179 is prime number.

Page No 41:

ANSWER:

(c)263

(a) 323 is not a prime number because 323 can be written as 17 × 19.
(b) 361 is not a prime number because 361 can be written as 19 × 19.
(c) 263 is a prime number.

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ANSWER:

(b) 9, 10

(a) 8, 12 are not co-primes as they have a common factor 4.
(b) 9, 10 are co-primes as they do not have a common factor.
(c) 6, 8 are not co-primes as they have a common factor 2.
(d)15,18 are not co-primes as they have a common factor 3.

Page No 41:

ANSWER:

(c) 32

(a) 23 is not a composite number as it cannot be broken into factors.
(b) 29 is not a composite number as it cannot be broken into factors.
(c) 32 is a composite number as it can be broken into factors, which are 2 × 2 × 2 × 2 × 2.

Page No 41:

ANSWER:

(d) $2 \times 3^2 = 18$
We first factorise the two numbers:

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2	144
2	72
2	36
2	18
3	9
3	3
	1

2	198
3	99
3	33
11	11
	1

144 = 2 × 2 × 2 × 2 × 3 × 3 = $2^4 \times 3^2$

198 = 2 × 3 × 3 × 11 = $2 \times 3^2 \times 11$

Here, 18 ($2 \times 3^2 = 18$) is the highest common factor of the two numbers.

Page No 41:

ANSWER:

(a) $2^2 \times 3 = 12$

We will first factorise the two numbers:

2	144
2	72
2	36
2	18
3	9
3	3
	1

2	180
2	90
3	45
3	15
5	5
	1

2	192
2	96
2	48
2	24
2	12
2	6
3	3
	1

144 = 2 × 2 × 2 × 2 × 2 × 3 × 3 = $2^4 \times 3^2$

180 = 2 × 2 × 3 × 3 × 5 = $2^2 \times 3^2 \times 5$

192 = 2 × 2 × 2 × 2 × 2 × 2 × 3 = $2^6 \times 3$

Here, 12 (i.e. $2^2 \times 3 = 12$) is the highest common factor of the three numbers.

Page No 41:

ANSWER:

(b) 161 and 192

(a) 39 and 91 are not co-primes as 39 and 91 have a common factor, i.e. 13.

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(b) 161 and 192 are co-primes as 161 and 192 have no common factor other than 1.
(c) 385 and 462 are not co-primes as 385 and 462 have common factors 7 and 11.

Page No 41:

ANSWER:

(d) 17231723

289391289391

H.C.F.=17

Dividing both the numerator and the denominator by the H.C.F. of 289 & 391:

289÷17391÷17=1723289÷17391÷17=1723

Page No 41:

ANSWER:

(d) 33
Since we need 2 as the remainder, we will subtract 2 from each of the numbers.
167 − 2 = 165
134 − 2 = 132
Now, any of the common factors of 165 and 132 will be the required divisor.
On factorising:
165 = 3 × 5 × 11
132 = 2 × 2 × 3 × 11
Their common factors are 11 and 3.
So, 3 × 11 = 33 is the required divisor.

Page No 41:

ANSWER:

(c) 360

224,36,40212,18,20 26, 9, 10 33, 9, 5 31, 3, 5 51, 1, 5 1, 1, 1 22
4,36,40212,18,20 26, 9, 10 33, 9, 5 31, 3, 5 51, 1, 5 1, 1, 1

L.C.M. = $2^3 \times 3^2 \times 5$
= 360

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Page No 42:

ANSWER:

(d) 540

212,15,20,2726,15,10,27 33,15, 5, 27 31, 5, 5, 9 31, 5, 5, 3 51, 5, 5, 1 1, 1, 1, 1 212,15,20,2726,15,10,27 33,15, 5, 27 31, 5, 5, 9 31, 5, 5, 3 51, 5, 5, 1 1, 1, 1, 1

L.C.M. = $2^2 \times 3^3 \times 5 = 540$

Page No 42:

ANSWER:

(c) 1263

The smallest number that is exactly divisible by 14, 28, 36 and 45 will be their L.C.M.
So, the required number will be the L.C.M. plus 3.

2	14, 28, 36, 45
2	7, 14, 18, 45
3	7, 7, 9, 45
3	7, 7, 3, 15
7	7, 7, 1, 5
5	1, 1, 1, 5
	1, 1, 1, 1

L.C.M. of the three numbers = $2^2 \times 3^2 \times 5 \times 7$
= 1260
∴ Required number = 1260 + 3 = 1263

Page No 42:

ANSWER:

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(c) 1
H.C.F. of two co-primes is 1.
This is because two co-prime numbers do not have any common factor.
For example, 15 and 16 are co-primes.
Their H.C.F. is 1.

Page No 42:

ANSWER:

(c) *ab*

If *a* and *b* are co-primes then their LCM will be ab.
For example, 4 and 9 are co-primes.
L.C.M. of 4 and 9 is 4×9.

Page No 42:

ANSWER:

(c) 180
Here, H.C.F. = 12
Product of two numbers = 2160

We know:
L.C.M. × H.C.F. = Product of the two numbers

L.C.M. = $\frac{2160}{\text{H.C.F.}}$2160H.C.F.

$= \frac{2160}{12}\frac{2160}{12}$
= 180
L.C.M. = 180

Page No 42:

ANSWER:

(b) 435

One of the numbers is 725.
H.C.F. = 145
L.C.M. = 2175
We know:

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L.C.M. × H.C.F. = Product of the two numbers

∴ Product of the two numbers = 145 × 2175

= 315375

∴ Other number =315375725315375725

= 435

Page No 42:

ANSWER:

(c) 1440

The least number divisible by each of the numbers 15, 20, 24, 32 and 36 is their L.C.M.

215,20,24,32,36215,10,12,16,18 215, 5, 6 , 8, 9 215, 5, 3, 4, 9 215, 5, 3, 2, 9 31 5, 5, 3, 1, 9 3 5, 5, 1, 1, 3 5 5, 5, 1, 1, 1 1, 1, 1, 1, 1 215,20,24,32,36215,10, 12,16,18 215, 5, 6 , 8, 9 215, 5, 3, 4, 9 215, 5, 3, 2, 9 315, 5, 3, 1, 9 3 5, 5, 1, 1, 3 5 5, 5, 1, 1, 1 1, 1, 1, 1, 1

L.C.M. = $2^5 \times 3^2 \times 5$

= 1440

Page No 42:

ANSWER:

(d) 3 hours

The L.C.M. of 9, 12 and 15 will give us the minutes after which the bells will next toll together.

29,12,1529,6,15 39, 3, 15 33, 1, 5 51, 1, 5 1, 1, 1 29,12,1529,6,15 39, 3, 15 33, 1, 5 51, 1, 5 1, 1, 1

L.C.M. = $2^2 \times 3^2 \times 5$

= 180

So,the bells will toll together after 180 min.

On converting into hours:

180/60 = 3 hours

Page No 43:

ANSWER:

Akash Institute

5869473

A number is divisible by 11 if the the difference of the sums of the digits at the odd places and that at the even places (starting from ones place) is either 0 or a multiple of 11.

Sum of the digits at even places = 7 + 9 + 8
= 24

Sum of the digits in odd places = 3 + 4 + 6 + 5
= 18

Difference = 24−18
= 6

Since 6 is not divisible by 11, 5869473 is not divisible by 11.

Page No 43:

ANSWER:

67529124

A number is divisible by 8 if the number formed by the hundreds, tens and ones digits is divisible by 8.

Since the digits at the hundred's, ten's and unit places are 124, which is not divisible by 8, 67529124 is not divisible by 8.

Page No 43:

ANSWER:

Remainder is 13

∴ Number exactly divisible by 31 = 5035 − 13
= 5022

```
      162
   ------
31 ) 5022
     -31
     ---
      192
     -186
     ----
       62
      -62
      ---
        0
```

So, the required quotient is 162.

Page No 43:

ANSWER:

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H.C.F. × L.C.M. = Products of the two numbers
Product of the two numbers = 1650
H.C.F. = 15
Required L.C.M. =165015165015
=110

Page No 43:

ANSWER:

Least five digit number = 10000

L.C.M. of 20,25,30 is 300.
But we want the least five digit number which is divisible by 20, 25, 30.
So, we will multiply the L.C.M. by a number that makes it the least five digit number divisible by 20, 25, 30.
300××31 = 9300
300××32 = 9600
300××33 = 9900
300××34 = 10200

So, the least five digit number divisible by 20, 25, 30 is 10200.

Page No 43:

ANSWER:

Since 6 and 4 are the remainders, the number must exactly divide the following:
630 – 6 = 624
and
940 – 4 = 936

624 = 2 × 2 × 2 × 2 × 3 × 13
936 = 2 × 2 × 2 × 3 × 3 × 13
H.C.F. of 624 and 936 = 8 × 3 × 13
= 312
So, 312 is the greatest number that divides 630 and 940, leaving 6 and 4 as the respective remainders.

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ANSWER:

On subtracting 5 from each number:
$16 - 5 = 11$
$36 - 5 = 31$
$40 - 5 = 35$
The required number will be the least common multiple of 11, 31 and 35.
L.C.M. of 11, 31 and 35 = $11 \times 31 \times 35$
$= 11935$
This is because they do not have any factor in common.
So, 11935 is the required number.

Page No 43:

ANSWER:

53, 59, 61, 67, 71, 73, 79, 83, 89, 97 are the prime numbers between 50 and 100.

Page No 43:

ANSWER:

Seven consecutive composite numbers less than 100 having no prime number between them are 90, 91, 92, 93, 94, 95 and 96.

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ANSWER:

No, they cannot have 512 as their L.C.M.

We know that the H.C.F. is one of the factors of the L.C.M. Here, 3, which is a factor of 12, is not a factor of 512.

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ANSWER:

The correct option is (a).
The H.C.F. of 72 and 91 is 1.
So, they are co-primes.

Option (b) is not correct because 34 and 51 have 17 as their H.C.F.

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Option (c) is not correct because 21 and 56 have 3 as their H.C.F.
Option (d) is not correct because 15 and 20 have 5 as their H.C.F.

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ANSWER:

The correct option is (c).
The L.C.M of two co-prime numbers is their product.

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ANSWER:

The correct option is (b).
1 is neither prime nor composite.

Option (a) is not correct because composite numbers are defined for positive numbers, but 0 is neither a positive number nor a negative number.
Option (c) is not correct because 2 is a prime number.
Option (d) is not correct because 3 is a prime number.

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ANSWER:

The correct option is (d).

6 + 7 + 3 + 0 + 1 + * + 2 = 19 + *
8 is the least number that should be added to 19 such that number will be divisible by 9.
Sum of the digits:
6 + 7 + 3 + 0 + 1 + 8 + 2 = 27
27 is divisible by 9.

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ANSWER:

The correct option is (c).
A number is divisible by 6 if it is divisible by both 2 and 3.

Since the ones digit of 87432 is 2, it is divisible by 2.
Now, 8 + 7 + 4 + 3 + 2 = 24

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24 is divisible by 3.
Hence, 87432 is divisible by 6 because it is divisible by both 2 and 3.

Option (a) is not correct because 67821 is not divisible by 2.
Option (b) is not correct because 78134 is not divisible by 3.
7 + 8 + 1 + 3 + 4 = 23
23 is not divisible by 3.

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ANSWER:

The correct option is (b).
To find a prime number between 100 and 200, we have to check whether the given number is divisible by any prime number less than 15. If yes, it is not prime, otherwise it is.
By examining, we find that 131 is a prime number.

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ANSWER:

(c) 17231723

17	289
1	17

17	391
23	23
	1

289 = 17 ×× 17
391 = 17 ×× 23
The H.C.F. of 289 and 391 is 17.

Dividing both the numerator and the denominator by 17:289 ÷ 17391 ÷ 17= 1723Dividing bot h the numerator and the denominator by 17:289 ÷ 17391 ÷ 17= 1723

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ANSWER:

The correct option is (b).

Every counting number has an infinite number of multiples.
If p is a counting number, its multiples are 1p, 2p, 3p....

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ANSWER:

(i) prime, composite
(ii) 2
(iii) 4
(iv) 1
(v) 6, 28

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ANSWER:

(i) F
2 is an even prime number.
(ii) F
2 is an even number, but it is not composite.
(iii) F
The sum of two odd numbers is always even. For example, 9 and 11 are odd numbers, but their sum, i.e. 20, is an even number.
(iv) T
The sum of two even numbers is always even. For example, 4 and 10 are even numbers, and their sum, i.e. 14, is an even number.
(v) T
For example, 4 and 6 are two numbers whose H.C.F is 2 and L.C.M. is 12, but 2 is a factor of 12.

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