RS Aggarwal Solutions for Class 6 Maths Chapter 2- Factors and Multiples

Exercise 2A

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1.

Solution

Factor: The exact divisor of a number is known as a factor

Multiple: A number obtained by multiplying it by natural number is known as multiple

Example: 1

We know that 14 = 1 × 14 = 2 × 7

Hence 1, 2, 7 and 14 are the factors of 14

∴ 14 is a multiple of 1, 2, 7 and 14

Example: 2

We know that 8 = 1 × 8 = 2 × 4

8 = 4 × 2

Hence 1, 2, 4 and 8 are the factors of 8

∴ 8 is a multiple of 1, 2, 4 and 8

2.

Solution

(i) 20

20 = 1× 20

20 = 4 × 5

20 = 10 × 2

Hence the factors are 1, 2, 4, 5, 10 and 20

(ii) 36

36 = 1 × 36

36 = 6 ×6

36 = 9 × 4

36 = 12 × 3

36 = 18 × 2

Hence the factors are 1, 2, 3, 4, 6, 9,12,18 and 36

(iii) 60

60 = 1 × 60

60 = 10 × 6

60 = 30 × 2

60 = 15 × 4

60 = 12 × 5

60 = 3 × 20

Hence the factors are 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30 and 60

(iv) 75

75 = 1 × 75

75 = 3 × 25

75 = 5 × 15

Hence the factors are 1, 3, 5, 15, 25 and 75

3.

Solution

(i) 17

17× 1 = 17

17 × 2 = 34

17 × 3 = 51

17 × 4 = 68

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

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

65 × 5 = 325

∴ The first five multiples of 65 are 65, 130, 195, 260 and 325

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(iv) 70

70 × 1 = 70

70 × 2 = 140

70 × 3 = 210

70 × 4 = 280

70 × 5 = 350

∴ The first five multiples of 70 are 70, 140, 210 280 and 350

4.

Solutions

(i) 32

32 is a multiple of 2

Hence it's an even number

(ii) 37

37 is not a multiple of 2

Hence it's an odd number

(iii) 50

50 is a multiple of 2

Hence it's an even number

(iv) 58

58 is a multiple of 2

Hence it's an even number

(v) 69

69 is not a multiple of 2

Hence it's an odd number

(vi) 144

144 is a multiple of 2

Hence it's an even number

(vii) 321

321 is not a multiple of 2

Hence it's an odd number

(viii) 253

253 is not a multiple of 2

Hence it's an odd number

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5.

Solutions

A number which has only two factors namely 1 and itself is called as prime numbers

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

6.

Solutions

(i) 11, 13, 17, 19, 23, 29, 31 and 37 are all prime numbers between 10 and 40

(ii) 83, 89 and 97 are all prime numbers between 80 and 100

(iii) 41, 43, 47, 53, 59, 61, 67, 71, 73 and 79 are all prime numbers between 40 and 80

(iv) 31 and 37 are prime numbers between 30 and 40

7.

Solution

(i) 2 is the smallest prime number

(ii) 2 is only one even prime number

(iii) 3 is the smallest odd prime number

8.

Solutions

(i) 87

1, 3, 29 and 87 are the divisors of 87

Hence 87 has more than 2 factors

∴ 87 is not a prime number

(ii) 89

1 and 89 are the divisors of 89

∴ 89 is a prime number

(iii) 63

1, 3, 7, 9, 21 and 63 are the divisors of 63

Hence 63 has more than 2 factors

∴ 63 is not a prime number

(iv) 91

1, 7, 13 and 91 are the divisors of 91

Hence 91 has more than two factors

∴ 91 is not a prime number

9.

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Solution

The seven consecutive numbers are 90, 91, 92, 93, 94, 95 and 96 which are not prime numbers

10.

Solution

(i) Since every number has two factors i.e. 1 and itself. Hence there is no counting number having no factor at all.

(ii) There is only one number which has exactly 1 factor i.e. 1

(iii) 4, 9, 25 and 49 are the numbers between 1 and 100 having exactly three factors

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Exercise 2B

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1.

Solutions

A number is divisible by 2 only if its one's digit is 0, 2, 4, 6 and 8

(i) Since 0 is in one's digits place in 2650

∴ It is divisible by 2

(ii) Since 0, 2, 4, 6 or 8 is not in one's digits place in 69435

∴ It is not divisible by 2

(iii) Since 8 is in one's digits place in 59628

∴ It is divisible by 2

(iv) Since 0, 2, 4, 6, or 8 is not in ones digits place in 789403

∴ It is not divisible by 2

(v) Since 6 is in one's digits place in 357986

∴ It is divisible by 2

(vi) Since 4 is in one's digits place in 367314

∴It is divisible by 2

2.

Solutions

A number is divisible by 3 when sum of its digits is divisible by 3

(i) Sum of its digits = 7 + 3 + 3 = 13

Since 13 is not divisible by 3

∴ 733 is not divisible by 3

(ii) Sum of its digits = 1 + 0 + 0+ 3 +8 = 12

Since 12 is divisible by 3

∴ 10038 is divisible by 3

(iii) Sum of its digits = 2 + 0 + 7 + 0 + 1 = 10

Since 10 is not divisible by 3

∴ 20701 is not divisible by 3

(iv) Sum of its digits = 5 + 2 + 4 + 7 + 8 + 1 = 27

Since 27 is divisible by 3

∴ 524781 is divisible by 3

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(v) Sum of its digits = 7+ 9 + 1 + 2 + 4 = 23

Since 23 is not divisible by 3

∴ 79124 is not divisible by 3

(vi) Sum of its digits 8 + 7 + 2 + 6 + 4 + 5 = 32

Since 32 is not divisible by 3

∴ 872645 is not divisible by 3

3.

Solutions

A number is divisible by 4 if the digits in its ones and tens place are divisible by 4

(i) 618 is not divisible by 4 since the last two digits 18 is not divisible by 4

(ii) 2314 is not divisible by 4 since last two digits 14 is not divisible by 4

(iii) 63712 is divisible by 4 since last two digits 12 is divisible by 4

(iv) 35056 is divisible by 4 since last two digits 56 is divisible by 4

(v) 946126 is not divisible by 4 since last two digits 26 is not divisible by 4

(vi) 810524 is divisible by 4 since last two digits 24 is divisible by 4

4.

Solutions

If the ones digit of a number is 0 or 5 then the number is divisible by 5

(i) Since 5 is in one's place

∴ 4965 is divisible by 5

(ii) Since 0 is in one's place

∴ 23590 is divisible by 5

(iii) Since 8 is in one's place

∴ 35208 is not divisible by 5

(iv) Since 5 is in one's place

∴ 723405 is divisible by 5

(v) Since 4 is in one's place

∴ 124684 is not divisible by 5

(vi) Since 0 is in one's place

∴ 438750 is divisible by 5

5.

Solutions

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If the number is divisible by both 2 and 3 then the number is divisible by 6

(i) Divisibility by 2 = Since 0 is in ones place. It is divisible by 2

Divisibility by 3 = Since the sum of digits = 2 + 0 + 7 + 0 = 9

9 is divisible by 3

∴ 2070 is divisible by 6

(ii) Divisibility by 2 = Since 3 is in ones place it is not divisible by 2

∴ 46523 is not divisible neither by 2 nor 6

(iii) Divisibility by 2 = Since 2 is in ones place it is divisible by 2

Divisibility by 3 = The sum of its digits = 7 + 1 + 2 + 3 + 2 = 15

15 is divisible by 3

∴ 71232 is divisible by 6 as it is divisible by 2 and 3

(iv) Divisibility by 3 = since sum of digits = 9 + 3 + 4 + 7 + 0 + 6 = 29

29 is not divisible by 3

∴ 934706 is not divisible by 6

(v) Divisibility by 3 = since sum of digits = 2 + 5 + 1 + 7 + 8 + 0 = 23

23 is not divisible by 3

∴ 251780 is not divisible by 6

(vi) Divisibility by 3 = since sum of digits = 8 + 7 + 2 + 5 + 3 +6 = 31

31 is not divisible by 3

∴ 872536 is not divisible by 6

6.

Solutions

(i) 826

82 – 2 × 6 = 70

70 is a multiple of 7

∴ 826 is divisible by 7

(ii) 117

11 – 2 × 7 = -3

-3 is not multiple of 7

∴ 117 is not divisible by 7

(iii) 2345

234 – 2 × 5 = 224

224 is a multiple of 7

∴ 2345 is divisible by 7

(iv) 6021

602 – 2 × 1 = 600

600 is not multiple of 7

∴ 6021 is not divisible by 7

(v) 14126

1412 – 2 × 6 = 1400

1400 is a multiple of 7

∴ 14126 is divisible by 7

(vi) 25368

2536 – 2 × 8 = 2520

2520 is a multiple of 7

∴ 25368 is divisible by 7

7.

Solutions

If the number formed by the last three digits is divisible by 8 then the given number is divisible by 8

(i) 9364

364 is not divisible by 8

Hence 9364 is not divisible by 8

(ii) 2138

138 is not divisible by 8

Hence 2138 is not divisible by 8

(iii) 36792

792 is divisible by 8

Hence 36792 is divisible by 8

(iv) 901674

674 is not divisible by 8

Hence 901674 is not divisible by 8

(v) 136976

976 is divisible by 8

Hence 136976 is divisible by 8

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(vi) 1790184

184 is divisible by 8

Hence 1790184 is divisible by 8

8.

Solutions

If the sum of its digits is divisible by 9 then the given number is divisible by 9

(i) 2358

Sum of its digits = 2 + 3 + 5 + 8 = 18

18 is divisible by 9

Hence 2358 is divisible by 9

(ii) 3333

Sum of its digits = 3 + 3 + 3 + 3 = 12

12 is not divisible by 9

Hence 3333 is not divisible by 9

(iii) 98712

Sum of its digits = 9 + 8 + 7 + 1 + 2 = 27

27 is divisible by 9

Hence 98712 is divisible by 9

(iv) 257106

Sum of its digits = 2 + 5 + 7 + 1 + 6 = 21

21 is not divisible by 9

Hence 257106 is not divisible by 9

(v) 647514

Sum of its digits = 6 + 4 + 7 + 5 + 1 + 4 = 27

27 is divisible by 9

Hence 647514 is divisible by 9

(vi) 326999

Sum of its digits = 3 + 2 + 6 + 9 + 9 + 9 = 38

38 is not divisible by 9

Hence 326999 is not divisible by 9

9.

Solutions

If the one's digit of a number is 0 then the given number is divisible by 10

(i) 5790

Here the one's digit is 0

∴ 5790 is divisible by 10

(ii) 63215

Here the one's digit is 5

∴ 63215 is not divisible by 10

(iii) 55555

Here the one's digit is 5

∴ 55555 is not divisible by 10

10.

Solutions

If the difference of the sum of its digits at odd places and sum of its digits at even places is either 0 or multiple of 11 then the given number is divisible by 11

(i) 4334

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

∴ 4334 is divisible by 11

(ii) 83721

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

∴ 83721 is divisible by 11

(iii) 66311

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

∴ 66311 is not divisible by 11

(iv) 137269

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

∴ 137269 is divisible by 11

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(v) 901351

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

∴ 901351 is divisible by 11

(vi) 8790322

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

∴ 8790322 is not divisible by 11

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Exercise 2C

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1.

Solution

We have:

2	12
2	6
3	3
	1

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

$= 2^2 \times 3$

The prime factorization of $12 = 2^2 \times 3$

2.

Solution

We have:

2	18
3	9
3	3
	1

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

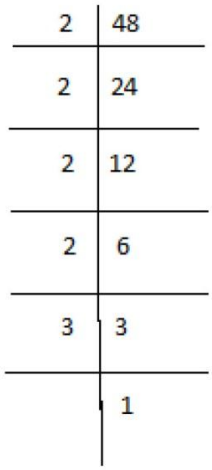
$= 2 \times 3^2$

The prime factorization of $18 = 2 \times 3^2$

3.

Solution

We have:



2	48
2	24
2	12
2	6
3	3
	1

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

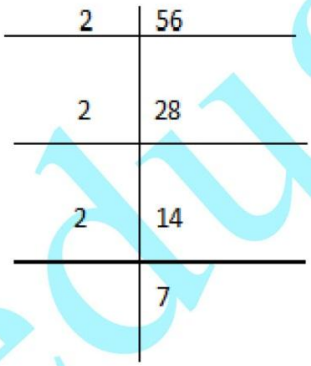
$= 2^4 \times 3$

The prime factorization of $48 = 2^4 \times 3$

4.

Solution

We have:



2	56
2	28
2	14
	7

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

$= 2^3 \times 7$

The prime factorization of $56 = 2^3 \times 7$

5.

Solution

We have:

2	90
3	45
3	15
5	5
	1

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

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

The prime factorization of $90 = 2 \times 3^2 \times 5$

6.

Solution

We have:

2	136
2	68
2	34
17	17
	1

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

$= 2^3 \times 17$

The prime factorization of $136 = 2^3 \times 17$

7.

Solution

We have:

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2	252
2	126
3	63
3	21
7	7
	1

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

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

The prime factorization of $252 = 2^2 \times 3^2 \times 7$

8.

Solution

We have:

2	420
2	210
3	105
7	35
5	5
	1

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

The prime factorization of $420 = 2^2 \times 3 \times 5 \times 7$

9.637

Solution

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We have:

7	637
7	91
13	13
	1

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

$= 7^2 \times 13$

The prime factorization of $637 = 7^2 \times 13$

10.

Solution

We have:

3	945
3	315
3	105
5	35
7	7
	1

$\therefore 945 = 3 \times 3 \times 3 \times 5 \times 7$

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

The prime factorization of $945 = 3^3 \times 5 \times 7$

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Exercise 2D

PAGE NO: 36

1.

Solution

2	84
2	42
3	21
7	7
	1

2	98
7	49
7	7
	1

The prime factors of 84 = 2 × 2 × 3 × 7 = $2^2 \times 3 \times 7$

The prime factors of 98 = 2 × 7 × 7 = 2×7^2

∴ HCF = 2× 7 = 14

2.

Solution

2	170
5	85
17	17
	1

2	238
7	119
17	17
	1

The prime factors of 170 = 2 × 5 × 17

The prime factors of 238 = 2 × 7 × 17

∴ HCF = 2 × 17 = 34

3.

Solution

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2	504
2	252
2	126
3	63
3	21
7	7
	1

The prime factors of 504 = $2^3 \times 3^2 \times 7$

2	980
2	490
5	245
7	49
7	7
	1

The prime factors of 980 = $2^2 \times 5 \times 7^2$

∴ HCF = $2^2 \times 7 = 28$

4.

Solution

2	72
2	36
2	18
3	9
3	3
	1

2	108
2	54
3	27
3	9
3	3
	1

2	180
2	90
3	45
3	15
5	5
	1

The prime factors of 72 = $2^3 \times 3^2$

The prime factors of 108 = $2^2 \times 3^3$

The prime factors of 180 = $2^2 \times 3^2 \times 5$

RS Aggarwal Solutions for Class 6 Maths Chapter 2- Factors and Multiples

∴ HCF = $2^2 \times 3^2 = 36$

5.

Solution

2	84
2	42
3	21
7	7
	1

2	120
2	60
2	30
3	15
5	5
	1

2	138
3	69
23	23

The prime factors of 84 = $2^2 \times 3 \times 7$

The prime factors of 120 = $2^3 \times 3 \times 5$

The prime factors of 138 = $2 \times 3 \times 23$

∴ HCF = $2 \times 3 = 6$

6.

Solution

2	106
53	53
	1

3	159
53	53
	1

7	371
53	53
	1

The prime factors of 106 = 2×53

The prime factors of 159 = 3×53

The prime factors of 371 = 7×53

∴ HCF = 53

7.

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Solution

2	272
2	136
2	68
2	34
17	17
	1

5	425
5	85
17	17
	1

The prime factors of 272 = $2^4 \times 17$

The prime factors of 425 = $5^2 \times 17$

∴ HCF = 17

8.

Solution

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

2	252
2	126
3	63
3	21
7	7
	1

2	630
3	315
3	15
5	5
	1

The prime factors of 144 = $2^4 \times 3^2$

The prime factors of 252 = $2^2 \times 3^2 \times 7$

The prime factors of 630 = $2 \times 3^2 \times 5$

∴ HCF = 18

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9.

Solution

3	1197
3	399
7	133
19	19
	1

2	5320
2	2660
2	1330
5	665
7	133
19	19
	1

3	4389
7	1463
11	209
19	19
	1

The prime factors of 1197 = $3^2 \times 7 \times 19$

The prime factors of 5320 = $2^3 \times 5 \times 7 \times 19$

The prime factors of 4389 = $3 \times 7 \times 11 \times 19$

∴ HCF = 133

10.

Solution

58	70	1			
	58				
	12	58	4		
		48			
		10	12	1	
			10		
			2	10	5
				10	
				0	

∴ The common factor of 58, 70 =2

11.

Solution

399	437	1		
	399			
	38	399	10	
		380		
		19	38	2
			38	
			0	

∴ The Common factor of 399, 437 = 19

12.

Solution

1045	1520	1		
	1045			
	475	1045	2	
		950		
		95	475	5
			475	
			0	

∴ The HCF of 1045, 1520 = 95

13.

Solution

1965	2096	1	
	1965		
	131	1965	15
		1965	
		0	

∴ Common factor of 1965, 2096 = 131

14.

Solution

2241	2324	1	
	2241		
	83	2241	27
		166	
		581	
		581	
		0	

∴ The Common factor of 2241, 2324 = 83

15.

Solution

658	940	1		
	658			
	282	658	2	
		564		
		94	282	3
			282	
			0	
94	1128	12		
	94			
	188			
	188			
	0			

∴ Common factor of 658, 940, 1128 = 94

16.

Solution

754	1972	2						
	1508							
	464	754	1					
		464						
		290	464	1				
			290		1			
			174	290	1			
				174				
				116	174	1		
					116			
					58	116	2	
						116		
						0		

754	1508	2
	1508	
	0	

∴ Common factor of 754, 1508, 1972 = 58

17.

Solution

391	425	1		
	391			
	34	391	11	
		34		
		51		
		34		
		17	34	2
			34	
			0	

17	527	31
	51	
	17	
	17	
	0	

∴ Common factor of 391, 425, 527 = 17

18.

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Solution

1794	2346	1		
	1794			
	552	1794	3	
		1656		
		138	552	4
			552	
			0	
138	4761	34		
	414			
	621			
	522			
	69	138	2	
		138		
		0		

∴ Common factor of 1794, 2346, 4761 is 69

19.

Solution

59 = 59× 1

97 = 97 × 1

Here common factor = 1

HCF = 1

Hence the given numbers are co primes

20.

Solution

161 = 7 × 23

192 = 2 × 2 × 2 × 2 × 2 × 2 ×3

= 2^6 ×3 ×1

Here common factor = 1

HCF = 1

Hence the given numbers are co primes

21.

Solution

343 = 7× 7 × 7

$= 7^3 \times 1$

$432 = 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3$

$= 2^4 \times 3^3 \times 1$

Here common factor = 1

HCF = 1

Hence the given numbers are co primes

22.

Solution

$512 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$

$= 2^9$

$945 = 3 \times 3 \times 3 \times 5 \times 7$

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

Here common factor = 1

HCF = 1

Hence the given numbers are co primes

23.

Solution

$385 = 5 \times 7 \times 11 \times 1$

$621 = 3 \times 3 \times 3 \times 23 \times 1$

$= 3^3 \times 23$

Here common factor = 1

HCF = 1

Hence the given numbers are co primes

24.

Solution

$847 = 7 \times 11 \times 11 \times 1$

$= 7 \times 11^2 \times 1$

$1014 = 2 \times 3 \times 13 \times 13 \times 1$

$= 2 \times 3 \times 13^2 \times 1$

Here common factor = 1

HCF = 1

Hence the given numbers are co primes

25.

RS Aggarwal Solutions for Class 6 Maths Chapter 2- Factors and Multiples

Solution

Since the remainder is 6 we have to find the number which exactly divides (615 -6) and (963 -6)

Required number = HCF of 609 and 957

609	957	1				
	609					
	348	609	1			
		348				
		261	348	1		
			261			
			87	261	3	
				261		
				0		

Hence, 87 is the greatest number which divides 615 and 963 leaving the remainder 6

RS Aggarwal Solutions for Class 6 Maths Chapter 2- Factors and Multiples

Exercise 2E

1.

Solution

2	42
3	21
7	7
	1

3	63
3	21
7	7
	1

$42 = 2 \times 3 \times 7$

$63 = 3 \times 3 \times 7$

$= 3^2 \times 7$

$\therefore$ LCM of 42 and 63 $= 2 \times 3^2 \times 7$

$= 2 \times 9 \times 7$

$= 18 \times 7$

$= 126$

2.

Solution

2	60
2	30
3	15
5	5
	1

3	75
5	25
5	5
	1

$60 = 2 \times 2 \times 3 \times 5$

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

$75 = 3 \times 5 \times 5$

$= 3 \times 5^2$

$\therefore$ LCM of 60 and 75 $= 2^2 \times 3 \times 5^2$

$= 4 \times 3 \times 25$

= 12 × 25

= 300

3.

Solutions

2	12
2	6
3	3
	1

2	18
3	9
3	3
	1

2	20
2	10
5	5
	1

$12 = 2 \times 2 \times 3 = 2^2 \times 3$

$18 = 2 \times 3 \times 3 = 2 \times 3^2$

$20 = 2 \times 2 \times 5 = 2^2 \times 5$

∴ LCM of 12, 18, and 20 $= 2^2 \times 3^2 \times 5$

$= 4 \times 9 \times 5$

$= 180$

4.

Solutions

2	36
2	18
3	9
3	3
	1

2	60
2	30
3	15
5	5
	1

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2	72
2	36
2	18
3	9
3	3
	1

$36 = 2 \times 2 \times 3 \times 3 = 2^2 \times 3^2$

$60 = 2 \times 2 \times 3 \times 5 = 2^2 \times 3 \times 5$

$72 = 2 \times 2 \times 2 \times 3 \times 3 = 2^3 \times 3^2$

$\therefore$ LCM of 36, 60 and $72 = 2^3 \times 3^2 \times 5$

$= 8 \times 9 \times 5$

$= 72 \times 5$

$= 360$

5.

Solutions

2	36
2	18
3	9
3	3
	1

2	40
2	20
2	10
5	5
	1

2	126
3	63
3	21
7	7
	1

$36 = 2 \times 2 \times 3 \times 3 = 2^2 \times 3^2$

$40 = 2 \times 2 \times 2 \times 5 = 2^3 \times 5$

$126 = 2 \times 3^2 \times 7$

$\therefore$ LCM of 36, 40 and $126 = 2^3 \times 3^2 \times 5 \times 7$

$= 8 \times 9 \times 5 \times 7$

$= 72 \times 35$

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= 2520

6.

Solution

2	16	28	40	77
2	8	14	20	77
2	4	7	10	77
7	2	7	5	77
	2	1	5	11

∴ LCM of given numbers = 2 × 2 × 2 × 7 × 2 × 5 × 11

= 2^4 × 5 × 7 × 11

= 16 × 35 × 11

= 6160

7.

Solutions

2	28	36	45	60
2	14	18	45	30
3	7	9	45	15
3	7	3	15	5
5	7	1	5	5
	7	1	1	1

∴ LCM of given numbers = 2 × 2 × 3 × 3 × 5 × 7

= 2^2 × 3^2 × 5 × 7

= 4 × 9 × 5 × 7

= 36 × 35

= 1260

8.

Solutions

2	144	180	384
2	72	90	192
2	36	45	96
2	18	45	48
3	9	45	24
3	3	15	8
	1	5	8

∴ LCM of given numbers = 2 × 2 × 2 × 2 × 3 × 3 × 5 × 8

= 2^4 × 3^2 × 5 × 8

= 16 × 9 × 5 × 8

= 16 × 45 × 8

= 5760

9.

Solution

2	48	64	72	96	108
2	24	32	36	48	54
2	12	16	18	24	27
2	6	8	9	12	27
2	3	4	9	6	27
3	3	2	9	3	27
3	1	2	3	1	9
	1	2	1	1	3

∴ LCM of given numbers = 2 × 2 × 2 × 2 × 2 × 3 × 3 × 2 × 3

= $2^6 \times 3^3$

= 64 × 27

= 1728

Q1.

Solution

To find the HCF of 117 and 221

117	221	1		
	117			
	104	117	1	
		104		
		13	104	8
			104	
			0	

∴ HCF of 117and 221 = 13

Since, LCM = product of numbers/HCF

=117 × 221/13

= 9 × 221

= 1989

∴ LCM = 1989 and HCF = 13

Q2.

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Solution

To find the HCF of 234 and 572

234	572	2			
	468				
	104	234	2		
		208			
		26	104	4	
			104		
			0		

∴ HCF of 234 and 572 = 26

Since, LCM = Product of numbers/ HCF

= 234 × 572/ 26

= 9 × 572

= 5148

∴ LCM = 5148 and HCF = 26

Q3.

Solution

To find the HCF of 693 and 1078

693	1078	1				
	693					
	385	693	1			
		385				
		308	385	1		
			308			
			77	308	4	
				308		

∴ HCF of 693 and 1078 = 77

Since, LCM = Product of numbers/ HCF

= 693 × 1078 / 77

= 9 × 1078

= 9702

∴ LCM = 9702 and HCF = 77

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Q4.

Solution

To find the HCF of 145 and 232

145	232	1				
	145					
	87	145	1			
		87				
		58	87	1		
			58			
			29	58	2	
				58		
				0		

∴ HCF of 145 and 232 = 29

Since, LCM = product of numbers / HCF

= 145 × 232 / 29

= 5 × 232

= 1160

∴ LCM = 1160 and HCF = 29

Q5.

Solution

To find HCF of 861 and 1353

861	1353	1			
	861				
	492	861	1		
		492			
		369	492	1	
			369		
			123	369	3
				369	
				0	

∴ HCF of 861 and 1353 = 123

Since, LCM = product of numbers /HCF

= 861 × 1353 / 123

= 7 × 1353

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= 9471

∴ LCM = 9471 and HCF = 123

Q6.

Solution

To find HCF of 2923 and 3239

2923	3239	1			
	2923				
	316	2923	9		
		2844			
		79	316	4	
			316		
			0		

∴ HCF of 2923 and 3239 = 79

Since, LCM = product of numbers/ HCF

= 2923 × 3239 / 79

= 37 × 3239

= 119843

∴ LCM = 119843 and HCF = 79

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Exercise 2F

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1.

Solution

83479560

Since sum of its digits = 8 + 3 + 4 + 7 + 9 + 5 + 6 + 0 = 42

42 is divisible by 3

Option (c) is the correct answer

2.

Solution

8576901

Since sum of its digits = 8 + 5 + 7 + 6 + 9 + 0 + 1 = 36

36 is divisible by 9

Option (a) is the correct answer

3.

Solution

87941032

Since the number formed by tens and one's digits is divisible by 4 i.e. 32

32 ÷ 4 = 8

Option (d) is the correct answer

4.

Solution

37450176

Since the number formed by hundreds tens and one's digits is divisible by 8 i.e. 176

176 ÷ 8 = 22

Option (b) is the correct answer

5.

Solution

8790432

Since its one digit is divisible by 2 and

Sum of its digits = 8 + 7 + 9 + 0 + 4 + 3 + 2 = 33

33 is divisible by 3, hence divisible by 6

Option (a) is the correct answer

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6.

Solution

22222222

Since the difference of the sum of its odd places digits and of its even places digits is

(2 + 2 + 2 + 2) – (2 + 2 + 2 + 2) = 8 – 8 = 0

Hence divisible by 11

Option (c) is the correct answer

7.

Solution

c) 97

Since 97 have no factors other than 1 and itself

Option (d) is the correct answer

8.

Solution

179

Since 179 have no factors other than 1 and itself

Option (c) is the correct answer

9.

Solution

a) 323 can be written as 17 × 19

Hence 323 is not a prime number

b) 361 can be written as 19 × 19

Hence 361 is not a prime number

c) 263 is a prime number

Option (c) is the correct answer

10.

Solution

(a) 8, 12

Here they have a common factor 4

Hence 8, 12 are not co- primes

(b) 9, 10

Here they don't have a common factor

Hence 9, 10 are co- primes

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(c) 6, 8

Here they have a common factor 2

Hence 6, 8 are not co- primes

(d) 15, 18

Here they have a common factor 3

Hence 15, 18 are not co-primes

Option (b) is the correct answer

11.

Solution

(a) 23

Since it cannot be broken into factors

Hence 23 is not a composite number

(b) 29

Since it cannot be broken into factors

Hence 29 is not a composite number

(c) 32

Since it can be broken into factors i.e. $2 \times 2 \times 2 \times 2 \times 2$

Hence 32 is a composite number

Option (c) is the correct answer

12.

Solution

First factorize the two numbers

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

2	198
3	99
3	33
11	11
	1

Here $144 = 2 \times 2 \times 2 \times 2 \times 3 \times 3$

$= 2^4 \times 3^2$

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

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

$18 = 2 \times 3^2$ is the highest common factor

Option (d) is the correct answer

13.

Solution

Here $2^2 \times 3 = 12$

The factorization of 144, 180 and 192

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

2	180
2	90
3	45
3	15
5	5
	1

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

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

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

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

Hence $2^2 \times 3$ is the highest common factor of all the three numbers

Option (a) is the correct answer

14.

Solution

a) 39, 91

Since 39, 91 have common factor 13

Hence 39, 91 are not co-primes

b) 161, 192

Since 161, 192 have no common factor other than 1 itself

Hence 161, 192 are co-primes

c) 385, 462

Since 385, 462 have common factors 7 and 11

Hence 385, 462 are not co-primes

Option (b) is the correct answer

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15.

Solution

Dividing both numerator and denominator by the HCF of 289/391

17	289
17	17
	1

17	391
23	23

Hence 289/391 = 17/23

17/23 is the correct answer

Option (d) is the correct answer

16.

Solution

Since we require 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 factorization

165 = 3 × 5 × 11

132 = 2 × 2 × 3 × 11

Their common factors are 11 and 3 = 11 × 3 = 33

Hence 33 is the required divisor

Option (d) is the correct answer