RS Aggarwal Solutions for Class 10 Maths Chapter 1 Exercise 1.2: RS Aggarwal's solutions for Class 10 Maths, Chapter 1, Exercise 1.2, focus on real numbers and their properties. This exercise helps students understand the fundamental theorem of arithmetic, which states that every composite number can be expressed as a product of prime numbers uniquely, except for the order of the primes.

The problems in this exercise involve finding the prime factorization of given numbers, determining the highest common factor (HCF) and least common multiple (LCM) using prime factorization, and solving word problems based on these concepts.

By working through these solutions, students can strengthen their grasp of prime numbers and their applications, laying a strong foundation for more advanced topics in mathematics.

RS Aggarwal Solutions for Class 10 Maths Chapter 1 Exercise 1.2 Overview

The RS Aggarwal Solutions for Class 10 Maths Chapter 1, Exercise 1.2, have been carefully prepared by the subject experts at Physics Wallah. These solutions help students understand real numbers, focusing on prime factorization, the highest common factor (HCF), and the least common multiple (LCM).

The clear explanations and step-by-step methods make it easy for students to learn and use the fundamental theorem of arithmetic. With these expert solutions, students can build a strong foundation in real numbers, improve their problem-solving skills, and feel more confident in their math abilities.

RS Aggarwal Solutions for Class 10 Maths Chapter 1 Real Numbers Exercise 1.2 PDF

The PDF link provided below contains the RS Aggarwal Solutions for Class 10 Maths Chapter 1, Exercise 1.2.

By focusing on prime factorization, the highest common factor (HCF), and the least common multiple (LCM), these solutions make it easier for students to grasp and apply the fundamental theorem of arithmetic.

This comprehensive PDF will help students in building a strong foundation in real numbers, enhancing their problem-solving skills and boosting their confidence in mathematics.

RS Aggarwal Solutions for Class 10 Maths Chapter 1 Real Numbers Exercise 1.2 PDF

RS Aggarwal Solutions for Class 10 Maths Chapter 1 Real Numbers Exercise 1.2

Here we have provided RS Aggarwal Solutions for Class 10 Maths Chapter 1 Exercise 1.2 for the ease of students so that they can prepare better for their exams.

Question 1.

Solution:

(i) 36, 84

2 | 36
2 | 18
3 | 9
3 | 3
1

2 | 84
2 | 42
3 | 21
7 | 7
1

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

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

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

$LCM = 2^2 \times 3^2 \times 7 = 2 \times 2 \times 3 \times 3 \times 7 = 252$

Now HCF x LCM = $12 \times 252 = 3024$

and product of number = $36 \times 84 = 3024$

HCF x LCM = Product of given two numbers.

(ii) 23, 31

$23 = 1 \times 23$

$31 = 1 \times 31$

HCF= 1

and LCM = $23 \times 31 = 713$

Now HCF x LCM = $1 \times 713 = 713$

and product of numbers = 23 x 31 = 713
HCF x LCM = Product of given two numbers

(iii) 96, 404

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

2	404
2	202
101	101
	1

96 = 2 x 2 x 2 x 2 x 2 x 3 = 2^5 x 3
404 = 2 x 2 x 101 = 2^2 x 101
HCF = 2^2 = 2 x 2 = 4
LCM = 2^5 x 3 x 101 = 32 x 3 x 101 = 9696
Now HCF x LCM = 4 x 9696 = 38784
and product of two numbers = 96 x 404 = 38784
HCF x LCM = Product of given two numbers

(iv) 144, 198

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

2	198
3	99
3	33
11	11
	1

144 = 2 x 2 x 2 x 2 x 3 x 3 = 2^4 x 32
198 = 2 x 3 x 3 x 11 = 2 x 3^2 x 11
HCF = 2 x 3^2 = 2 x 3 x 3 = 18
LCM = 2^4 x 3^2 x 11 = 16 x 9 x 11 = 1584
and product of given two numbers = 144 x 198 = 28512

$$\begin{array}{r} 144 \\ \times 198 \\ \hline 1152 \\ 12960 \\ 14400 \\ \hline 28512 \end{array}$$

and HCF x LCM = 18 x 1584 = 28512

$$\begin{array}{r} 1584 \\ \times 18 \\ \hline 12672 \\ 15840 \\ \hline 28512 \end{array}$$

HCF x LCM = Product of given two numbers

(v) 396, 1080

2	396
2	198
3	99
3	33
11	11
	1

2	1080
2	540
2	270
3	135
3	45
3	15
5	5
	1

$396 = 2 \times 2 \times 3 \times 3 \times 11 = 2^2 \times 3^2 \times 11$

$1080 = 2 \times 2 \times 2 \times 3 \times 3 \times 3 \times 5 = 2^3 \times 3^3 \times 5$

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

$LCM = 2^3 \times 3^3 \times 11 \times 5 = 2 \times 2 \times 2 \times 3 \times 3 \times 3 \times 5 \times 11 = 11880$

Now HCF x LCM = 36 x 11880 = 427680

$$\begin{array}{r} 11880 \\ \times 36 \\ \hline 71280 \\ 356400 \\ \hline 427680 \end{array}$$

Product of two numbers = 396 x 1080 = 427680

$$\begin{array}{r} 1080 \\ \times 396 \\ \hline 6480 \\ 97200 \\ 324000 \\ \hline 427680 \end{array}$$

HCF x LCM = Product of two given numbers.

(vi) 1152, 1664

2	1152
2	576
2	288
2	144
2	72
2	36
2	18
3	9
3	3
	1

2	1664
2	832
2	416
2	208
2	104
2	52
2	26
13	13
	1

1152 = 2 x 2 x 2 x 2 x 2 x 2 x 2 x 3 x 3 = $2^7 \times 3^2$

1664 = 2 x 2 x 2 x 2 x 2 x 2 x 2 x 13 = $2^7 \times 13$

HCF = 2^7 = 2 x 2 x 2 x 2 x 2 x 2 x 2 = 128

LCM = $2^7 \times 3^2 \times 13$ = 128 x 9 x 13 = 128 x 117= 14976

$$\begin{array}{r} 128 \\ \times 117 \\ \hline 896 \\ 1280 \\ 12800 \\ \hline 14976 \end{array}$$

Now HCF x LCM = 128 x 14976= 1916928

$$\begin{array}{r} 14976 \\ \times 128 \\ \hline 119808 \\ 299520 \\ 1497600 \\ \hline 1916928 \end{array}$$

and product of given two numbers = 1152 x 1664= 1916928

$$\begin{array}{r} 1664 \\ \times 1152 \\ \hline 3328 \\ 83200 \\ 166400 \\ 1664000 \\ \hline 1916928 \end{array}$$

HCF x LCM = Product of given two numbers.

Question 2.

Solution:

(i) $8 = 2 \times 2 \times 2 = 2^3$

$9 = 3 \times 3 = 3^2$

$25 = 5 \times 5 = 5^2$

HCF = Product of smallest power of each common prime factor in the numbers = 1

LCM = Product of the greatest power of each prime factor involved in the numbers = $2^3 \times 3^2 \times 5^2 = 1800$

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

$15 = 3 \times 5$

$21 = 3 \times 7$

HCF = Product of smallest power of each common prime factor in the numbers = 3

LCM = Product of the greatest power of each prime factor involved in the numbers = $2^2 \times 3 \times 5 \times 7 = 420$

(iii) $17 = 17$

$23 = 23$

$29 = 29$

HCF = Product of smallest power of each common prime factor in the numbers = 1

LCM = Product of the greatest power of each prime factor involved in the numbers = $17 \times 23 \times 29 = 11339$

(iv) $24 = 2 \times 2 \times 2 \times 3 = 2^3 \times 3$

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

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

$\therefore$ HCF = Product of smallest power of each common prime factor in the numbers = $2^2 = 4$

$\therefore$ LCM = Product of the greatest power of each prime factor involved in the numbers = $2^3 \times 3^2 \times 5 = 360$

(v) $30 = 2 \times 3 \times 5$

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

$432 = 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3 = 2^4 \times 3^3$

$\therefore$ HCF = Product of smallest power of each common prime factor in the numbers = $2 \times 3 = 6$

$\therefore$ LCM = Product of the greatest power of each prime factor involved in the numbers = $24 \times 3^3 \times 5 = 2160$

(vi) $21 = 3 \times 7$

$28 = 28 = 2 \times 2 \times 7 = 2^2 \times 7$

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

$45 = 5 \times 3 \times 3 = 5 \times 3^2$

$\therefore$ HCF = Product of smallest power of each common prime factor in the numbers = 1

∴ LCM = Product of the greatest power of each prime factor involved in the numbers = $2^2 \times 3^2 \times 5 \times 7 = 1260$

Question 3.

Solution:

HCF of two numbers = 23

LCM =1449

One number = 161

$$\therefore \text{ Second number} = \frac{\text{HCF} \times \text{LCM}}{\text{One number}}$$

$$= \frac{23 \times 1449}{161} = 207$$

Second number = 207

Question 4.

Solution:

HCF of two numbers = 145

LCM = 2175

One number = 725

$$\therefore \text{ Second number} = \frac{\text{HCF} \times \text{LCM}}{\text{One number}}$$

$$= \frac{145 \times 2175}{725} = 435$$

Second number = 435

Question 5.

Solution:

HCF of two numbers = 18

and product of two numbers = 12960

$$\therefore \text{ LCM} = \frac{\text{Product of two numbers}}{\text{HCF}}$$

$$= \frac{12960}{18} = 720$$

LCM of two numbers = 720

Question 6.

Solution:

HCF= 18

LCM = 760

HCF always divides the LCM completely

760 – 18 = 42 and remainder 4

Hence, it is not possible.

Question 7.

Solution:

(a)60/92

HCF of 69 and 92 = 23

$$69\overline{)92}(1$$
$$\underline{69}$$
$$23\overline{)69}(3$$
$$\underline{69}$$
$$\times$$

$$\therefore \frac{69}{92} = \frac{69 \div 23}{92 \div 23} = \frac{3}{4}$$

(Dividing each by their HCF = 23)

$\therefore \frac{3}{4}$ is the simplest form.

(*ii*) $\frac{473}{645}$

HCF of 473 and 645 = 43

$$473\overline{)645}(1$$
$$\underline{473}$$
$$172\overline{)473}(2$$
$$\underline{344}$$
$$129\overline{)173}(1$$
$$\underline{129}$$
$$43\overline{)129}(3$$
$$\underline{129}$$
$$\times$$

$\therefore \frac{473}{645} = \frac{473 \div 43}{645 \div 43} = \frac{11}{15}$

(Dividing each by their HCF = 43)

$\therefore \frac{11}{15}$ is the simplest form.

(*iii*) $\frac{1095}{1168}$

HCF of 1095 and 1168 = 73

$$
\begin{array}{l}
1095\overline{)1168}(1 \\
\quad 1095 \\
\quad\overline{\quad 73)1095}(15 \\
\qquad 73 \\
\qquad\overline{\quad 365} \\
\qquad 365 \\
\qquad\overline{\quad \times}
\end{array}
$$

1

1

$\therefore \frac{1095}{1168} = \frac{1095 \div 73}{1168 \div 73} = \frac{15}{16}$

(Dividing both by their HCF = 73)

$\therefore \frac{15}{16}$ is the simplest form.

(*iv*) $\frac{368}{496}$

HCF of 368 and 496 = 16

$$
\begin{array}{l}
368\overline{)496}(1 \\
\quad 368 \\
\quad \overline{128)368}(2 \\
\quad\quad 256 \\
\quad\quad \overline{112)128}(1 \\
\quad\quad\quad 112 \\
\quad\quad\quad \overline{16)112}(7 \\
\quad\quad\quad\quad 112 \\
\quad\quad\quad\quad \overline{\times}
\end{array}
$$

$\therefore \frac{368 \div 16}{496 \div 16} = \frac{23}{31}$

(Dividing each by their HCF = 16)

$\therefore \frac{23}{31}$ is the simplest form.

Question 8.

Solution:

Numbers are 428 and 606 and remainder in each case = 6
Now subtracting 6 from each number, we get 438 – 6 = 432
and 606 – 6 = 600
Required number = HCF of 432 and 600 = 24
The largest required number is 24

```
432)600(1
    432
 168)432(2
      336
       96)168(1
          96
          72)96(1
             72
             24)72(3
                72
                ×
```

Question 9.

Solution:

The numbers are 320 and 457
and remainders are 5 and 7 respectively
320 – 5 = 315 and 457 – 7 = 450
Now the required greatest number of 315 and 450 is their HCF

Now HCF of 315 and 450 = 45

```
315)450(1
    315
  135)315(2
      270
    45)135(3
       135
       ×
```

Question 10.

Solution:

The numbers are given = 35, 56, 91 and the remainder = 7 in each case,
Now the least number = LCM of 35, 56, 91 = 3640

```
7 | 35, 56, 91
  | 5, 8, 13
```

LCM = 7 x 5 x 8 x 13 = 3640
Required least number = 3640 + 7 = 3647

Question 11.

Solution:

Given numbers are 28 and 32
Remainders are 8 and 12 respectively
28 – 8 = 20
32 – 12 = 20
Now, LCM of 28 and 32 = 224

```
2 | 28, 32
2 | 14, 16
  | 7, 8
```

LCM = 2 x 2 x 7 x 8 = 224
Least required number = 224 – 20 = 204

Question 12.

Solution:
The given numbers are 468 and 520
Now LCM of 468 and 520 = 4680

2	468, 520
2	234, 260
13	117, 130
	9, 10

LCM = 2 x 2 x 13 x 9 x 10 = 4680
When number 17 is increase then required number = 4680 – 17 = 4663

Question 13.

Solution:
LCM of 15, 24, 36 = 360

2	15, 24, 36
2	15, 12, 18
3	15, 6, 9
	5, 2, 3

LCM = 2 × 2 × 3 × 5 × 2 × 3 = 360

Greatest number of 4-digits = 9999

360)9999(27
720
2799
2520
279

Required number = 9999 – 279 = 9720

Question 14.

Solution:

Greatest number of 4 digits is 9999
LCM of 4, 7 and 13 = 364
On dividing 9999 by 364, remainder is 171
Greatest number of 4 digits divisible by 4, 7 and 13 = (9999 – 171) = 9828
Hence, required number = (9828 + 3) = 9831

Question 15.

Solution:

LCM of 5, 6, 4 and 3 = 60
On dividing 2497 by 60, the remainder is 37
Number to be added = (60 – 37) = 23

Question 16.

Solution:

We can represent any integer number in the form of: pq + r, where ‘p is divisor, ‘q is quotient’, r is remainder*.
So, we can write given numbers from given in formation As :
43 = pq1 + r ...(i)

91 = pq2 + r ...(ii)
And 183 = pq3 + r ...(iii)
Here, we want to find greatest value of ‘p’ were r is same.
So, we subtract eq. (i) from eq. (ii), we get
Pq2 – Pq1 = 48
Also, subtract eq. (ii) from eq. (iii), we get
pq3 – pq2 = 92
Also, subtract eq. (i) from eq. (iii), we get
Pq3 – Pq1 = 140
Now, to find greatest value of ‘p’ we find HCF of 48, 92 and 140 as,
48 = 2 x 2 x 2 x 2 x 3
92 = 2 x 2 x 2 x 2 x 2 x 3
and 140 = 2 x 2 x 5 x 7
So, HCF (48, 92 and 140) = 2 x 2 = 4
Greatest number that will divide 43, 91 and 183 as to leave the same remainder in each case = 4.

Question 17.

Solution:

Remainder in all the cases is 6, i.e.,
20 – 14 = 6
25 – 19 = 6
35 – 29 = 6

40 – 34 = 6

The difference between divisor and the corresponding remainder is 6.
Required number = (LCM of 20, 25, 35, 46) – 6 = 1400 – 6 = 1394

Question 18.

Solution:

Number of participants in Hindi = 60

Number of participants in English = 84

Number of participants in Mathematics =108

Minimum number of participants in one room = HCF of 60, 84 and 108 = 12

$$\begin{array}{r} 60\overline{)84}(1 \\ 60 \\ \hline 24\overline{)60}(2 \\ 48 \\ \hline 12\overline{)24}(2 \\ 24 \\ \hline \times \end{array}$$

and $$\begin{array}{r} 12\overline{)108}(9 \\ 108 \\ \hline \times \end{array}$$

And number of rooms $= \frac{60}{12} + \frac{84}{12} + \frac{108}{12}$

$= 5 + 7 + 9 = 21$ rooms

Question 19.

Solution:

Number of books in English = 336
Number of books in Mathematics = 240
Number of books in Science = 96
Minimum number of books of each topic in a stack = HCF of 336, 240 and 96 = 48

$$96\overline{)240}(2$$
$$\underline{192}$$
$$48\overline{)96}(2$$
$$\underline{96}$$
$$\times$$

and $$48\overline{)336}(7$$
$$\underline{336}$$
$$\times$$

and number of stacks $= \frac{336}{48} + \frac{240}{48} + \frac{96}{48}$

$= 7 + 5 + 2 = 14$ stacks

Question 20.

Solution:

Length of first piece of timber = 42 m
Length of second piece of timber = 49 m
and length of third piece of timber = 63 m

42)49(1
42
7)42(6
42
×

7)63(9
63
×

∴ Greatest length of plank to be divided
= HCF of 42, 49 and 63 = 7 m

Number of planks = $\frac{42}{7} + \frac{49}{7} + \frac{63}{7}$

= 6 + 7 + 9 = 22 planks

Question 21.

Solution:

Lengths are given as 7 m, 3 m 85 cm and 12 m 95 cm = 700 cm, 385 cm and 1295 cm

Greatest possible length that can be used to measure exactly = HCF of 700, 385, 1295 = 35 cm

385)700(1
385
315)385(1
315
70)315(4
280
35)70(2
70
×

and 35)1295(37
105
245
245
×

Question 22.

Solution:

Number of pens =1001

and number of pencils = 910

Maximum number of pens and pencils equally distributed to the students = HCF of 1001 and 910 = 91

Number of students = 91

$$
\begin{array}{r}
91\overline{)1001}(10 \\
\underline{910} \\
91\overline{)910}(10 \\
\underline{910} \\
\times
\end{array}
$$

Question 23.

Solution:

Length of the room = 15 m 17 cm = 1517 cm
and breadth = 9 m 2 cm = 902 cm
Maximum side of square tile used = HCF of 1517 and 902 = 41 cm

$$
\begin{array}{l}
902\overline{)1517}(1 \\
\quad 902 \\
\quad\overline{615})902(1 \\
\quad\quad 615 \\
\quad\quad\overline{287})615(2 \\
\quad\quad\quad 574 \\
\quad\quad\quad\overline{41})287(7 \\
\quad\quad\quad\quad 287 \\
\quad\quad\quad\quad\overline{\times}
\end{array}
$$

$$\text{Number of tiles used} = \frac{1517 \times 902}{41 \times 41} = 814$$

Question 24.

Solution:

Measures of three rods = 64 cm, 80 cm and 96 cm

Least length of cloth that can be measured an exact number of times
= LCM of 64, 80, 96
= 960 cm
= 9 m 60 cm
= 9.6 m

2	64, 80, 96
2	32, 40, 48
2	16, 20, 24
2	8, 10, 12
2	4, 5, 6
	2, 5, 3

LCM = 2 x 2 x 2 x 2 x 2 x 2 x 5 x 3 = 960

Question 25.

Solution:
Beep made by first devices after every = 60 seconds
Second device after = 62 seconds
Period after next beep together = LCM of 60, 62

2	60, 62
	30, 31

LCM = 2 x 30 x 31 = 1860 = 1860 seconds = 31 minutes
Time started beep together, first time together = 10 a.m.
Time beep together next time = 10 a.m. + 31 minutes = 10 : 31 a.m.

Question 26.

Solution:

The traffic lights of three roads change after
48 sec., 72 sec. and 108 sec. simultaneously
They will change together after a period of = LCM of 48 sec., 72 sec. and 108 sec.

2	48, 72, 108
2	24, 36, 54
2	12, 18, 27
3	6, 9, 27
3	2, 3, 9
	2, 1, 3

$= 2 \times 2 \times 2 \times 3 \times 3 \times 3$ sec.

$= 432$ sec.

$= \frac{432}{60}$ min $= \frac{36}{5} = 7.2$ min

= 7 minutes, 12 seconds
First time they light together at 8 a.m. i.e., after 8 hr.
Next time they will light together = 8 a.m. + 7 min. 12 sec. = 8 : 07 : 12 hrs.

Question 27.

Solution:

Tolling of 6 bells = 2, 4, 6, 8, 10, 12 minutes
They take time tolling together = LCM of 2, 4, 6, 8, 10, 12 = 120 minutes = 2 hours

2	2, 4, 6, 8, 10, 12
2	1, 2, 3, 4, 5, 6
3	1, 1, 3, 2, 5, 3
	1, 1, 1, 2, 5, 1

2
4

LCM of 2 x 2 x 2 x 3 x 5 = 120 min. (2 hr)
They will toll together after every 2 hours Total time given = 30 hours
Number of times, there will toll together in 30 hours = = 15 times
Total numbers of times = 15 + 1 (of starting time) = 16 times

Benefits of RS Aggarwal Solutions for Class 10 Maths Chapter-1 Exercise 1.2

- **Clear Understanding**: Provides detailed explanations, making it easier to grasp concepts like prime factorization, HCF, and LCM.
- **Step-by-Step Solutions**: Helps students follow a logical approach to solving problems, enhancing their problem-solving skills.
- **Conceptual Clarity**: Strengthens the foundational understanding of real numbers and the fundamental theorem of arithmetic.
- **Confidence Boost**: Builds confidence by helping students master essential math concepts, ensuring they are well-prepared for higher-level math topics.