RS Aggarwal Solutions for Class 10 Maths Chapter 1: RS Aggarwal Solutions for Class 10 Maths Chapter 1 Exercise 1.1 help students learn the basics of real numbers step by step. This exercise focuses on topics like the Euclidean Division Algorithm, which is used to find factors and multiples of numbers.

By solving problems in this exercise, students practice finding the Highest Common Factor (HCF) and the Least Common Multiple (LCM). These solutions are designed to make learning easy and clear, helping students prepare well for exams and understand math better.

RS Aggarwal Solutions for Class 10 Maths Chapter 1 Exercise 1.1 Overview

These notes, created by experts at Physics Wallah, give an overview of RS Aggarwal Solutions for Class 10 Maths Chapter 1 Exercise 1.1. This exercise focuses on basic concepts like the Euclidean Division Algorithm for finding factors and multiples of numbers.

The solutions provided help students learn how to find the Highest Common Factor (HCF) and the Least Common Multiple (LCM) step by step. These notes are easy to understand and are designed to improve students' math skills and prepare them well for exams.

RS Aggarwal Solutions for Class 10 Maths Chapter 1 Exercise 1.1 PDF

Below is the PDF link for RS Aggarwal Solutions for Class 10 Maths Chapter 1, which covers the topic of Real Numbers. This chapter includes essential concepts like the Euclidean Division Algorithm, the Fundamental Theorem of Arithmetic, and methods to find the Highest Common Factor (HCF) and Least Common Multiple (LCM).

The solutions in the PDF are detailed and provide step-by-step explanations to help students understand and solve problems effectively. This PDF is a valuable resource for students preparing for exams, aiming to strengthen their understanding of mathematics fundamentals.

RS Aggarwal Solutions for Class 10 Maths Chapter 1 Exercise 1.1 PDF

RS Aggarwal Solutions for Class 10 Maths Chapter 1 Real Numbers Exercise 1.1

Here we have provided RS Aggarwal Solutions for Class 10 Maths Chapter 1 Exercise 1.1 for the ease of students so that they can prepare better for their exams.

Question 1.

Solution:
For any two given positive integers a and b, there exist unique whole numbers q and r such that
$a = bq + r$, when $0 \leq r < b$.
Here, a is called dividend, b as divisor, q as quotient and r as remainder.
Dividend = (Divisor x Quotient) + Remainder.

Question 2.

Solution:
Using Euclid's divison Lemma
Dividend = (Divisor x Quotient) + Remainder
= (61 x 27) + 32
= 1647 + 32
= 1679
Required number = 1679

Question 3.

Solution:
Let the required divisor = x
Then by Euclid's division Lemma,
Dividend = (Divisor x Quotient) + remainder
1365 = x x 31 + 32
=> 1365 = 31x + 32
=> 31x= 1365 – 32 = 1333
$x = \frac{1331}{31} = 43$
Divisor = 43

Question 4.

Solution:

(i) 405 and 2520

HCF of 405 and 2520 = 45

```
405)2520(6
    2430
    ----
      90)405(4
         360
         ---
          45)90(2
             90
             --
              ×
```

(*ii*) 504 and 1188

HCF of 504 and 1188 = 36

```
504)1188(2
    1008
    ----
     180)504(2
         360
         ---
         144)180(1
             144
             ---
              36)144(4
                 144
                 ---
                  ×
```

(*iii*) 960 and 1575

HCF of 960 and 1575 = 15

```
960)1575(1
    960
    615)960(1
        615
        345)615(1
            345
            270)345(1
                270
                 75)270(3
                    225
                     45)75(1
                        45
                        30)45(1
                           30
                           15)30(2
                              30
                               ×
```

Question 5.

Solution:

Let n be an arbitrary positive integer.

On dividing n by 2, let m be the quotient and r be the remainder, then by Euclid's division lemma

$n = 2 \times m + r = 2m + r, 0 \le r < 2$

$n = 2m$ or $2m + 1$ for some integer m.

Case 1 : When $n = 2m$, then n is even

Case 2 : When $n = 2m + 1$, then n is odd.

Hence, every positive integer is either even or odd.

Question 6.

Solution:
Let n be a given positive odd integer.
On dividing n by 6, let m be the quotient and r be the remainder, then by Euclid's division Lemma.
$n = 6m + r$, where $0 \leq r < 6 \Rightarrow n = 6m + r$, where $r = 0, 1, 2, 3, 4, 5$
$\Rightarrow n = 6m$ or $(6m + 1)$ or $(6m + 2)$ or $(6m + 3)$ or $(6m + 4)$ or $(6m + 5)$
But $n = 6m$, $(6m + 2)$ and $(6m + 4)$ are even.
Thus when n is odd, it will be in the form of $(6m + 1)$ or $(6m + 3)$ or $(6m + 5)$ for some integer m.

Question 7.

Solution:
Let n be an arbitrary odd positive integer.
On dividing by 4, let m be the quotient and r be the remainder.
So by Euclid's division lemma,
$n = 4m + r$, where $0 \leq r < 4$
$n = 4m$ or $(4m + 1)$ or $(4m + 2)$ or $(4m + 3)$
But $4m$ and $(4m + 2)$ are even integers.
Since n is odd, so $n \neq 4m$ or $n \neq (4m + 2)$
$n = (4m + 1)$ or $(4m + 3)$ for some integer m.
Hence any positive odd integer is of the form $(4m + 1)$ or $(4m + 3)$ for some integer m.

Question 8.

Solution:
Let $a = n^3 - n$

$= a = n (n^2 – 1)$
$=a = n (n – 1) (n + 1)$ $[(a^2 – b^2) = (a – b) (a + b)]$
$=a = (n – 1) n (n + 1)$
We know that,

(i) If a number is completely divisible by 2 and 3, then it is also divisible by 6

(ii) If the sum of digits of any number is divisible by 3, then it is also divisible by 3.

(iii) If one of the factor of any number is an even number, then it is also divisible by 2.
$a = (n – 1) n (n + 1)$ [From Eq. (i)]
Now, sum of the digits
$= n – 1 + n + n + 1 = 3n$
= Multiple of 3, where n is any positive integer.
and $(n – 1) n (n +1)$ will always be even, as one out of $(n – 1)$ or n or $(n + 1)$ must be even.
Since, conditions (ii) and (iii) is completely satisfy the Eq. (i).
Hence, by condition (i) the number n3 – n is always divisible by 6, where n is any positive integer.
Hence proved.

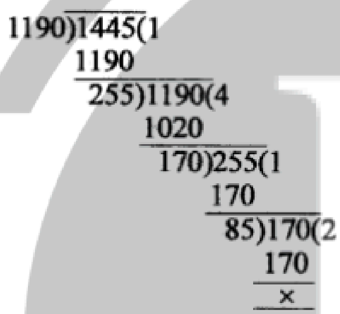
Question 9.

Solution:
Let $x = 2m + 1$ and $y = 2m + 3$ are odd positive integers, for every positive integer m.
Then, $x^2 + y^2 = (2m + 1)^2 + (2m + 3)^2$
$= 4m^2 + 1 + 4 m + 4m^2 + 9 + 12m$ $[(a + b)^2 = a^2 + 2ab + b^2]$

= $2(4m^2 + 8m + 5)$ or $4(2m^2 + 4m + 2) + 1$
Hence, $x^2 + y^2$ is even for every positive integer m but not divisible by 4.

Question 10.

Solution:
We find HCF (1190, 1145) using the following steps:



(i) Since 1445 > 1190, we divide 1445 by 1190 to get 1 as quotient and 255 as remainder.
By Euclid's division lemma, we get
1445 = 1190 x 1 + 255 …(i)

(ii) Since the remainder 255 ≠ 0, we divide 1190 by 255 to get 4 as a quotient and 170 as a remainder.
By Euclid's division lemma, we get
1190 = 255 x 4 + 170 …(ii)

(iii) Since the remainder 170 ≠ 0, we divide 255 by 170 to get 1 as quotient and 85 as remainder.
By Euclid's division lemma, we get
255 = 170 x 1 +85 …(iii)

(iv) Since the remainder 85 ≠ 0, we divide 170 by 85 to get 2 as quotient and 0 as remainder.
By Euclid's division lemma, we get
170 = 85 x 2 + 0 …(iv)
The remainder is now 0, so our procedure steps
HCF (1190, 1445) = 85
Now, from (iii), we get
255 = 170 x 1 + 85
= 85 = 255 – 170 x 1
= (1445 – 1190) – (1190 – 255) x 4
= (1445 – 1190) – (1190 – 255) x 4
= (1445 – 1190) x 2 + (1445 – 1190) x 4
= 1445 – 1190 x 2 + 1445 x 4 – 1190 x 4
= 1445 x 5 – 1190 x 6
= 1190 x (-6) + 1445 x 5
Hence, m = -6, n = 5

Benefits of RS Aggarwal Solutions for Class 10 Maths Chapter 1 Exercise 1.1

- **Concept Clarity**: The solutions provide clear explanations and step-by-step procedures, helping students understand the basics of real numbers and the Euclidean Division Algorithm.

- **Practice Opportunities**: Exercise 1.1 includes a variety of problems that allow students to practice finding factors, multiples, HCF, and LCM, thereby strengthening their problem-solving skills.
- **Foundation Building**: By mastering Exercise 1.1, students build a solid foundation in fundamental mathematical concepts, which are essential for tackling more complex topics in higher grades.
- **Exam Preparation**: Practicing these exercises prepares students thoroughly for exams by familiarizing them with the types of questions they may encounter and teaching them effective problem-solving strategies.
- **Self-Assessment**: Students can use the solutions to check their own work, identify mistakes, and understand where they may need further practice or clarification.
- **Resource Accessibility**: RS Aggarwal Solutions are readily available and structured in a way that makes them easy to use for both classroom learning and self-study, enhancing accessibility and effectiveness.