

**RD Sharma Solutions Class 10 Maths Chapter 1 Exercise 1.2:** RD Sharma Solutions for Class 10 Maths Chapter 1 Exercise 1.2 focuses on understanding irrational numbers, building on the basics of real numbers from the previous exercise.

This exercise helps students recognize and work with irrational numbers which are numbers that cannot be written as simple fractions and have decimal forms that don't repeat or end. With step-by-step explanations, RD Sharma solutions guide students through proving the irrationality of certain numbers and performing calculations with them. These solutions make complex ideas easier to understand, helping students build confidence and prepare for exams.

## **RD Sharma Solutions Class 10 Maths Chapter 1 Exercise 1.2 Overview**

RD Sharma Solutions for Class 10 Maths Chapter 1 Exercise 1.2 are created by subject expert of Physics Wallah to provide a detailed overview of irrational numbers. This exercise builds on previous concepts of real numbers and helps students identify numbers that cannot be represented as fractions known as irrational numbers.

With Physics Wallah step-by-step solutions, students learn to prove the irrationality of specific numbers and understand how to perform calculations with these non-terminating, non-repeating decimals. These solutions are created to simplify complex topics, giving students the clarity and confidence needed to tackle similar problems in exams.

## **RD Sharma Solutions Class 10 Maths Chapter 1 Exercise 1.2 PDF**

RD Sharma Solutions for Class 10 Maths Chapter 1 Exercise 1.2 PDF provides students with a structured approach to understanding irrational numbers building on the concepts of real numbers. This exercise focuses on identifying and working with irrational numbers which have non-terminating, non-repeating decimal forms and cannot be expressed as fractions.

These expert-prepared solutions simplify complex ideas making learning easier and boosting exam preparation. You can download the PDF from the link provided below to access these helpful resources directly.

**RD Sharma Solutions Class 10 Maths Chapter 1 Exercise 1.2 PDF**

## **RD Sharma Solutions Class 10 Maths Chapter 1 Real Numbers Exercise 1.2**

Here is the RD Sharma Solutions Class 10 Maths Chapter 1 Real Numbers Exercise 1.2 -

**1. Define the HCF of two positive integers and find the HCF of the following pairs of numbers:**

**(i) 32 and 54**

**Solution:**

Apply Euclid's division lemma on 54 and 32

$$54 = 32 \times 1 + 22$$

Since remainder  $\neq 0$ , apply division lemma on 32 and remainder 22

$$32 = 22 \times 1 + 10$$

Since remainder  $\neq 0$ , apply division lemma on 22 and remainder 10

$$22 = 10 \times 2 + 2$$

Since remainder  $\neq 0$ , apply division lemma on 10 and remainder 2

$$10 = 2 \times 5 + 0$$

Therefore, the HCF of 32 and 54 is 2.

**(ii) 18 and 24**

**Solution:**

Apply Euclid's division lemma on 24 and 18

$$24 = 18 \times 1 + 6.$$

Since remainder  $\neq 0$ , apply the division lemma on divisor 18 and remainder 6

$$18 = 6 \times 3 + 0.$$

Therefore, the HCF of 18 and 24 is 6.

**(iii) 70 and 30**

**Solution:**

Apply Euclid's division lemma on 70 and 30

$$70 = 30 \times 2 + 10.$$

Since remainder  $\neq 0$ , apply division lemma on divisor 30 and remainder 10

$$30 = 10 \times 3 + 0.$$

Therefore, the HCF of 70 and 30 is 10.

**(iv) 56 and 88**

**Solution:**

Apply Euclid's division lemma on 56 and 88

$$88 = 56 \times 1 + 32.$$

Since remainder  $\neq 0$ , apply division lemma on 56 and remainder 32

$$56 = 32 \times 1 + 24.$$

Since remainder  $\neq 0$ , apply division lemma on 32 and remainder 24

$$32 = 24 \times 1 + 8.$$

Since remainder  $\neq 0$ , apply division lemma on 24 and remainder 8

$$24 = 8 \times 3 + 0.$$

Therefore, the HCF of 56 and 88 is 8.

**(v) 475 and 495**

**Solution:**

By applying Euclid's division lemma on 495 and 475, we get

$$495 = 475 \times 1 + 20.$$

Since remainder  $\neq 0$ , apply division lemma on 475 and remainder 20

$$475 = 20 \times 23 + 15.$$

Since remainder  $\neq 0$ , apply division lemma on 20 and remainder 15

$$20 = 15 \times 1 + 5.$$

Since remainder  $\neq 0$ , apply division lemma on 15 and remainder 5

$$15 = 5 \times 3 + 0.$$

Therefore, the HCF of 475 and 495 is 5.

**(vi) 75 and 243**

**Solution:**

By applying Euclid's division lemma on 243 and 75,

$$243 = 75 \times 3 + 18.$$

Since remainder  $\neq 0$ , apply division lemma on 75 and remainder 18

$$75 = 18 \times 4 + 3.$$

Since remainder  $\neq 0$ , apply division lemma on divisor 18 and remainder 3

$$18 = 3 \times 6 + 0.$$

Therefore, the HCF of 75 and 243 is 3.

**(vii) 240 and 6552**

**Solution:**

By applying Euclid's division lemma on 6552 and 240, we get

$$6552 = 240 \times 27 + 72.$$

Since remainder  $\neq 0$ , apply division lemma on divisor 240 and remainder 72

$$240 = 72 \times 3 + 24.$$

Since remainder  $\neq 0$ , apply division lemma on divisor 72 and remainder 24

$$72 = 24 \times 3 + 0.$$

Therefore, the HCF of 240 and 6552 is 24.

**(viii) 155 and 1385**

**Solution:**

By applying Euclid's division lemma on 1385 and 155, we get

$$1385 = 155 \times 8 + 145.$$

Since remainder  $\neq 0$ , apply the division lemma on divisor 155 and remainder 145.

$$155 = 145 \times 1 + 10.$$

Since remainder  $\neq 0$ , apply the division lemma on divisor 145 and remainder 10

$$145 = 10 \times 14 + 5.$$

Since remainder  $\neq 0$ , apply division lemma on divisor 10 and remainder 5

$$10 = 5 \times 2 + 0.$$

Therefore, the HCF of 155 and 1385 is 5.

**(ix) 100 and 190**

**Solution:**

By applying Euclid's division lemma on 190 and 100, we get

$$190 = 100 \times 1 + 90.$$

Since remainder  $\neq 0$ , apply division lemma on divisor 100 and remainder 90

$$100 = 90 \times 1 + 10.$$

Since remainder  $\neq 0$ , apply division lemma on divisor 90 and remainder 10

$$90 = 10 \times 9 + 0.$$

Therefore, the HCF of 100 and 190 is 10.

**(x) 105 and 120**

**Solution:**

By applying Euclid's division lemma on 120 and 105, we get

$$120 = 105 \times 1 + 15.$$

Since remainder  $\neq 0$ , apply division lemma on divisor 105 and remainder 15

$$105 = 15 \times 7 + 0.$$

Therefore, the HCF of 105 and 120 is 15.

**2. Use Euclid's division algorithm to find the HCF of**

**(i) 135 and 225**

**Solution:**

The integers given here are 225 and 135. On comparing, we find  $225 > 135$ .

So, by applying Euclid's division lemma to 225 and 135, we get

$$225 = 135 \times 1 + 90$$

Since the remainder  $\neq 0$ , we apply the division lemma to the divisor 135 and remainder 90.

$$\Rightarrow 135 = 90 \times 1 + 45$$

Now, we apply the division lemma to the new divisor 90 and the remainder 45.

$$\Rightarrow 90 = 45 \times 2 + 0$$

Since the remainder at this stage is 0, the divisor will be the HCF.

Hence, the HCF of 225 and 135 is 45.

**(ii) 196 and 38220**

**Solution:**

The integers given here are 196 and 38220. On comparing, we find  $38220 > 196$ .

So, by applying Euclid's division Lemma to 38220 and 196, we get,

$$38220 = 196 \times 195 + 0$$

Since the remainder at this stage is 0, the divisor will be the HCF.

Hence, the HCF of 38220 and 196 is 196.

**(iii) 867 and 255**

**Solution:**

The integers given here are 867 and 255. On comparing, we find  $867 > 255$ .

So, by applying Euclid's division Lemma to 867 and 255, we get,

$$867 = 255 \times 3 + 102$$

Since the remainder  $102 \neq 0$ , we apply the division lemma to the divisor 255 and remainder 102, and we get,

$$255 = 102 \times 2 + 51$$

Now, we apply the division lemma to the new divisor 102 and the remainder 51, we get,

$$102 = 51 \times 2 + 0$$

Since the remainder at this stage is 0, the divisor will be the HCF.

Hence, the HCF of 867 and 255 is 51.

**(iv) 184, 230 and 276**

**Solution:**

Let's first choose 184 and 230 to find the HCF by using Euclid's division lemma.

Thus, we obtain

$$230 = 184 \times 1 + 46$$

Since the remainder  $46 \neq 0$ , we apply the division lemma to the divisor 184 and the remainder 46, and we get,

$$184 = 46 \times 4 + 0$$

The remainder at this stage is 0, the divisor will be the HCF, i.e., 46 for 184 and 230.

Now, we again use Euclid's division lemma to find the HCF of 46 and 276, and we get

$$276 = 46 \times 6 + 0$$

So, this stage has a remainder of 0, and the HCF of the third number 276 and 46 is 46.

Hence, the HCF of 184, 230 and 276 is 46.

**(v) 136, 170 and 255**

**Solution:**

Let's first choose 136 and 170 to find the HCF by using Euclid's division lemma.

Thus, we obtain

$$170 = 136 \times 1 + 34$$

Since the remainder  $34 \neq 0$ , we apply the division lemma to the divisor 136 and remainder 34, and we get,

$$136 = 34 \times 4 + 0$$

The remainder at this stage is 0, the divisor will be the HCF, i.e., 34 for 136 and 170.

Now, we again use Euclid's division lemma to find the HCF of 34 and 255, and we get

$$255 = 34 \times 7 + 17$$

Since the remainder  $17 \neq 0$ , we apply the division lemma to the divisor 34 and remainder 17, and we get,

$$34 = 17 \times 2 + 0$$

So, this stage has a remainder of 0. Thus, the HCF of the third number, 255 and 34, is 17.

Hence, the HCF of 136, 170 and 255 is 17.

**3. Find the HCF of the following pair of integers and express it as a linear combination of them,**

**(i) 963 and 657**

**Solution:**

By applying Euclid's division lemma on 963 and 657, we get

$$963 = 657 \times 1 + 306 \dots\dots\dots (1)$$

As the remainder  $\neq 0$ , apply the division lemma on divisor 657 and remainder 306

$$657 = 306 \times 2 + 45 \dots\dots\dots (2)$$

As the remainder  $\neq 0$ , apply the division lemma on divisor 306 and remainder 45

$$306 = 45 \times 6 + 36 \dots\dots\dots (3)$$

As the remainder  $\neq 0$ , apply the division lemma on divisor 45 and remainder 36

$$45 = 36 \times 1 + 9 \dots\dots\dots (4)$$

As the remainder  $\neq 0$ , apply the division lemma on divisor 36 and remainder 9

$$36 = 9 \times 4 + 0 \dots\dots\dots (5)$$

Thus, we can conclude that HCF = 9.

Now, in order to express the found HCF as a linear combination of 963 and 657, we perform

$$9 = 45 - 36 \times 1 \text{ [from (4)]}$$

$$= 45 - [306 - 45 \times 6] \times 1 = 45 - 306 \times 1 + 45 \times 6 \text{ [from (3)]}$$

$$= 45 \times 7 - 306 \times 1 = [657 - 306 \times 2] \times 7 - 306 \times 1 \text{ [from (2)]}$$

$$= 657 \times 7 - 306 \times 14 - 306 \times 1$$

$$= 657 \times 7 - 306 \times 15$$

$$= 657 \times 7 - [963 - 657 \times 1] \times 15 \text{ [from (1)]}$$

$$= 657 \times 7 - 963 \times 15 + 657 \times 15$$

$$= 657 \times 22 - 963 \times 15.$$

**(ii) 592 and 252**

**Solution:**

By applying Euclid's division lemma on 592 and 252, we get

$$592 = 252 \times 2 + 88 \dots\dots\dots (1)$$

As the remainder  $\neq 0$ , apply the division lemma on divisor 252 and remainder 88

$$252 = 88 \times 2 + 76 \dots\dots\dots (2)$$

As the remainder  $\neq 0$ , apply the division lemma on divisor 88 and remainder 76

$$88 = 76 \times 1 + 12 \dots\dots\dots (3)$$

As the remainder  $\neq 0$ , apply the division lemma on divisor 76 and remainder 12

$$76 = 12 \times 6 + 4 \dots\dots\dots (4)$$

Since the remainder  $\neq 0$ , apply the division lemma on divisor 12 and remainder 4

$$12 = 4 \times 3 + 0 \dots\dots\dots (5)$$

Thus, we can conclude that  $\text{HCF} = 4$ .

Now, in order to express the found HCF as a linear combination of 592 and 252, we perform

$$4 = 76 - 12 \times 6 \text{ [from (4)]}$$

$$= 76 - [88 - 76 \times 1] \times 6 \text{ [from (3)]}$$

$$= 76 - 88 \times 6 + 76 \times 6$$

$$= 76 \times 7 - 88 \times 6$$

$$\begin{aligned}
&= [252 - 88 \times 2] \times 7 - 88 \times 6 \text{ [from (2)]} \\
&= 252 \times 7 - 88 \times 14 - 88 \times 6 \\
&= 252 \times 7 - 88 \times 20 \\
&= 252 \times 7 - [592 - 252 \times 2] \times 20 \text{ [from (1)]} \\
&= 252 \times 7 - 592 \times 20 + 252 \times 40 \\
&= 252 \times 47 - 592 \times 20 \\
&= 252 \times 47 + 592 \times (-20).
\end{aligned}$$

**(iii) 506 and 1155**

**Solution:**

By applying Euclid's division lemma on 506 and 1155, we get

$$1155 = 506 \times 2 + 143 \dots \dots \dots (1)$$

As the remainder  $\neq 0$ , apply the division lemma on divisor 506 and remainder 143

$$506 = 143 \times 3 + 77 \dots \dots \dots (2)$$

As the remainder  $\neq 0$ , apply the division lemma on divisor 143 and remainder 77

$$143 = 77 \times 1 + 66 \dots \dots \dots (3)$$

Since the remainder  $\neq 0$ , apply the division lemma on divisor 77 and remainder 66

$$77 = 66 \times 1 + 11 \dots \dots \dots (4)$$

As the remainder  $\neq 0$ , apply the division lemma on divisor 66 and remainder 11

$$66 = 11 \times 6 + 0 \dots \dots \dots (5)$$

Thus, we can conclude that HCF = 11.

Now, in order to express the found HCF as a linear combination of 506 and 1155, we perform

$$\begin{aligned}
11 &= 77 - 66 \times 1 \text{ [from (4)]} \\
&= 77 - [143 - 77 \times 1] \times 1 \text{ [from (3)]} \\
&= 77 - 143 \times 1 + 77 \times 1
\end{aligned}$$

$$\begin{aligned}
&= 77 \times 2 - 143 \times 1 \\
&= [506 - 143 \times 3] \times 2 - 143 \times 1 \text{ [from (2)]} \\
&= 506 \times 2 - 143 \times 6 - 143 \times 1 \\
&= 506 \times 2 - 143 \times 7 \\
&= 506 \times 2 - [1155 - 506 \times 2] \times 7 \text{ [from (1)]} \\
&= 506 \times 2 - 1155 \times 7 + 506 \times 14 \\
&= 506 \times 16 - 1155 \times 7.
\end{aligned}$$

**(iv) 1288 and 575**

**Solution:**

By applying Euclid's division lemma on 1288 and 575, we get

$$1288 = 575 \times 2 + 138 \dots\dots\dots (1)$$

As the remainder  $\neq 0$ , apply the division lemma on divisor 575 and remainder 138

$$575 = 138 \times 4 + 23 \dots\dots\dots (2)$$

As the remainder  $\neq 0$ , apply the division lemma on divisor 138 and remainder 23

$$138 = 23 \times 6 + 0 \dots\dots\dots (3)$$

Thus, we can conclude that HCF = 23.

Now, in order to express the found HCF as a linear combination of 1288 and 575, we perform

$$\begin{aligned}
23 &= 575 - 138 \times 4 \text{ [from (2)]} \\
&= 575 - [1288 - 575 \times 2] \times 4 \text{ [from (1)]} \\
&= 575 - 1288 \times 4 + 575 \times 8 \\
&= 575 \times 9 - 1288 \times 4.
\end{aligned}$$

**4. Find the largest number, which divides 615 and 963, leaving the remainder 6 in each case.**

**Solution:**

Firstly, the required numbers on dividing don't leave any remainder to be found.

This is done by subtracting 6 from both the given numbers.

So, the numbers are  $615 - 6 = 609$  and  $963 - 6 = 957$ .

Now, if the HCF of 609 and 957 is found, that will be the required number.

By applying Euclid's division lemma

$$957 = 609 \times 1 + 348$$

$$609 = 348 \times 1 + 261$$

$$348 = 261 \times 1 + 87$$

$$261 = 87 \times 3 + 0.$$

$$\Rightarrow \text{HCF} = 87.$$

Therefore, the required number is 87.

**5. If the HCF of 408 and 1032 is expressible in the form  $1032m - 408 \times 5$ , find  $m$ .**

**Solution:**

Firstly, the HCF of 408 and 1032 is to be found.

By applying Euclid's division lemma, we get

$$1032 = 408 \times 2 + 216.$$

Here, the remainder  $\neq 0$ . So apply Euclid's division lemma on divisor 408 and remainder 216

$$408 = 216 \times 1 + 192.$$

As the remainder  $\neq 0$ , again apply the division lemma on divisor 216 and remainder 192

$$216 = 192 \times 1 + 24.$$

Again the remainder  $\neq 0$ . So, apply the division lemma again on divisor 192 and remainder 24

$$192 = 24 \times 8 + 0.$$

Now, it is seen that the remainder is 0.

Hence, the last divisor is the HCF of 408 and 1032, i.e., 24

So, this HCF is expressed as a linear combination, that is,

$$24 = 1032m - 408 \times 5$$

$$1032m = 24 + 408 \times 5$$

$$1032m = 24 + 2040$$

$$1032m = 2064$$

$$m = 2064/1032$$

$$\therefore m = 2$$

**6. If the HCF of 657 and 963 is expressible in form  $657x + 963y - 15$ , find  $x$ .**

**Solution:**

Firstly, the HCF of 657 and 963 is to be found.

By applying Euclid's division lemma, we get

$$963 = 657 \times 1 + 306.$$

Here, the remainder  $\neq 0$ , so we apply Euclid's division lemma on divisor 657 and remainder 306

$$657 = 306 \times 2 + 45.$$

Now, continue applying the division lemma till the remainder becomes 0.

$$306 = 45 \times 6 + 36.$$

Again, the remainder  $\neq 0$

$$45 = 36 \times 1 + 9.$$

Again, the remainder  $\neq 0$

$$36 = 9 \times 4 + 0.$$

Now, the remainder = 0.

Hence, the last divisor is the HCF of 657 and 963, i.e., 9

So, this HCF is expressed as a linear combination which is given as,

$$9 = 657x + 963(-15).$$

Solving for  $x$ , we get

$$9 = 657x - 14445$$

$$9 + 14445 = 657x$$

$$14454 = 657x$$

$$\Rightarrow x = 14454 / 657$$

$$\therefore x = 22.$$

**7. An army contingent of 616 members is to march behind an army band of 32 members in a parade. The two groups are to march in the same number of columns. What is the maximum number of columns in which they can march?**

**Solution:**

It is given that an army contingent of 616 members is to march behind an army band of 32 members in a parade. Also, the two groups are to march in the same number of columns.

Thus, we need to find the maximum number of columns in which they can march.

This is done by simply finding the HCF of the given two numbers.

Therefore, the maximum number of columns = HCF of 616 and 32.

By applying Euclid's division lemma

$$616 = 32 \times 19 + 8$$

$$32 = 8 \times 4 + 0.$$

So, HCF = 8

$\therefore$  The maximum number of columns in which they can march is 8.

**8. A merchant has 120 litres of oil of one kind, 180 litres of another and 240 litres of the third kind. He wants to sell the oil by filling the three kinds of oil in tins of equal capacity. What should be the greatest capacity of such a tin?**

**Solution:**

From the question, it's given that the merchant has 3 different oils of 120 litres, 180 litres and 240 litres, respectively.

So, the greatest capacity of the tin for filling three different types of oil can be found by simply finding the HCF of the three quantities 120, 180 and 240.

Firstly, apply Euclid's division lemma on 180 and 120.

$$180 = 120 \times 1 + 60$$

$$120 = 60 \times 2 + 0 \text{ (here, the remainder becomes zero in this step)}$$

Since the divisor at the last step is 60, the HCF (120, 180) = 60.

Now, let's find the HCF of 60 and the third quantity of 240.

Applying Euclid's division lemma, we get

$$240 = 60 \times 4 + 0$$

And here, since the remainder is 0, the HCF (240, 60) is 60.

Therefore, the capacity of the tin should be 60 litres.

**9. During a sale, colour pencils were being sold in packs of 24 each and crayons in packs of 32 each. If you want full packs of both and the same number of pencils and crayons, how many of each would you need to buy?**

**Solution:**

To get full packs of both colour pencils and crayons and also of the same numbers in quantity, we need to find the number of packets each needs to be bought.

It's given that,

Number of colour pencils in a pack = 24

Number of crayons in a pack = 32.

So, the least number of both colour pencils and crayons that need to be purchased is given by their LCM.

$$\text{L.C.M of 24 and 32} = 2 \times 2 \times 2 \times 2 \times 2 \times 3 = 96$$

$$\therefore \text{The number of packs of pencils to be bought} = 96 / 24 = 4 \text{ packs.}$$

$$\text{And, the number of packs of crayons to be bought} = 96 / 32 = 3 \text{ packs.}$$

**10. 144 cartons of Coke Cans and 90 cartons of Pepsi Cans are to be stacked in a Canteen. If each stack is of the same height and is to contain cartons of the same drink, what would be the greatest number of cartons each stack would have?**

**Solution:**

It's given that,

Number of cartons of coke cans = 144

Number of cartons of Pepsi cans = 90.

So, the greatest number of cartons in a stack can be found by finding the HCF(144, 90).

Thus, by applying Euclid's division lemma on 144 and 90, we get

$$144 = 90 \times 1 + 54$$

$$90 = 54 \times 1 + 36$$

$$54 = 36 \times 1 + 18$$

$$36 = 18 \times 2 + 0 \text{ (only in this stage the remainder becomes 0)}$$

$\therefore$  The HCF should be the last divisor, i.e., 18.

Hence, the greatest number of cartons together in one stack is 18.

**11. Find the greatest number, which divides 285 and 1249, leaving remainders 9 and 7, respectively.**

**Solution:**

From the question, it can be understood that the required number, which divides 285 and 1249, leaves the remainder 9 and 7, respectively should be

$$285 - 9 = 276 \text{ and } 1249 - 7 = 1242 \text{ can divide them exactly.}$$

So, if the HCF of 276 and 1242 is found, then that will be the required number.

Now, by applying Euclid's division lemma, we get

$$1242 = 276 \times 4 + 138$$

$$276 = 138 \times 2 + 0. \text{ (The remainder becomes 0 here)}$$

So, the HCF = 138

$\therefore$  The required number is 138.

**12. Find the largest number which exactly divides 280 and 1245, leaving remainders 4 and 3, respectively.**

**Solution:**

From the question, it's understood that,

$280 - 4 = 276$  and  $1245 - 3 = 1242$ , which has to be exactly divisible by the number.

Thus, the required number should be the HCF of 276 and 1242.

Now, applying Euclid's division lemma

$$1242 = 276 \times 4 + 138$$

$$276 = 138 \times 2 + 0 \text{ (the remainder becomes 0 here)}$$

And hence the HCF (280, 1245) = 138

$\therefore$  The required number is 138.

**13. What is the largest number that divides 626, 3127 and 15628 and leaves remainders of 1, 2 and 3, respectively?**

**Solution:**

From the question, it's understood that,

$626 - 1 = 625$ ,  $3127 - 2 = 3125$  and  $15628 - 3 = 15625$  has to be exactly divisible by the number.

Thus, the required number should be the HCF of 625, 3125 and 15625.

First, consider 625 and 3125 and apply Euclid's division lemma

$$3125 = 625 \times 5 + 0$$

$$\therefore \text{HCF (625, 3125)} = 625$$

Next, consider 625 and the third number, 15625, to apply Euclid's division lemma

$$15625 = 625 \times 25 + 0$$

We get the HCF of 625 and 15625 to be 625.

$$\therefore \text{HCF (625, 3125, 15625)} = 625$$

So, the required number is 625.

**14. Find the greatest number that will divide 445, 572 and 699, leaving remainders 4, 5 and 6, respectively.**

**Solution:**

From the question, it's understood that,

$445 - 4 = 441$ ,  $572 - 5 = 567$  and  $699 - 6 = 693$  has to be exactly divisible by the number.

Thus, the required number should be the HCF of 441, 567 and 693.

First, consider 441 and 567 and apply Euclid's division lemma till the remainder becomes 0

$$567 = 441 \times 1 + 126$$

$$441 = 126 \times 3 + 63$$

$$126 = 63 \times 2 + 0.$$

$$\therefore \text{HCF}(441 \text{ and } 567) = 63$$

Next, consider 63 and the third number, 693, to apply Euclid's division lemma

$$693 = 63 \times 11 + 0.$$

We get the HCF of 63 and 693 to be 63.

$$\therefore \text{HCF}(441, 567 \text{ and } 693) = 63$$

So, the required number is 63.

**15. Find the greatest number which divides 2011 and 2623, leaving remainders 9 and 5, respectively.**

**Solution:**

From the question, it's understood that,

$2011 - 9 = 2002$  and  $2623 - 5 = 2618$ , which has to be exactly divisible by the number.

Thus, the required number should be the HCF of 2002 and 2618

Applying Euclid's division lemma, we get

$$2618 = 2002 \times 1 + 616$$

$$2002 = 616 \times 3 + 154$$

$$616 = 154 \times 4 + 0. \text{ (Here, the remainder becomes 0)}$$

And hence the HCF (2002, 2618) = 154

$\therefore$  The required number is 154.

**16. Using Euclid's division algorithm, find the largest number that divides 1251, 9377 and 15628, leaving remainders 1, 2 and 3, respectively.**

**Solution:**

From the question, it's understood that,

$1251 - 1 = 1250$ ,  $9377 - 2 = 9375$  and  $15628 - 3 = 15625$  has to be exactly divisible by the number.

Thus, the required number should be the HCF of 1250, 9375 and 15625.

First, consider 1250 and 9375 and apply Euclid's division lemma

$$9375 = 1250 \times 7 + 625$$

$$1250 = 625 \times 2 + 0$$

$$\therefore \text{HCF}(1250, 9375) = 625$$

Next, consider 625 and the third number, 15625, to apply Euclid's division lemma

$$15625 = 625 \times 25 + 0$$

We get the HCF of 625 and 15625 to be 625.

$$\therefore \text{HCF}(1250, 9375, 15625) = 625$$

So, the required number is 625.

**17. Two brands of chocolates are available in packs of 24 and 15, respectively. If I need to buy an equal number of chocolates of both kinds, what is the least number of boxes of each kind I would need to buy?**

**Solution:**

From the question, it's given that

Number of chocolates of 1<sup>st</sup> brand in a pack = 24

Number of chocolates of 2<sup>nd</sup> brand in a pack = 15.

So, the least number of both brands of chocolates that need to be purchased is given by their LCM.

$$\text{LCM of } 24 \text{ and } 15 = 2 \times 2 \times 2 \times 3 \times 5 = 120$$

Hence, the number of packets of the 1<sup>st</sup> brand to be bought =  $120 / 24 = 5$ .

And, the number of packets of the 2<sup>nd</sup> brand to be bought =  $120 / 15 = 8$ .

**18. A mason has to fit a bathroom with square marble tiles of the largest possible size. The size of the bathroom is 10ft. by 8ft. What would be the size in inches of the tile required that has to be cut and how many such tiles are required?**

**Solution:**

From the question, it's given that,

Size of bathroom = 10 ft. by 8 ft.

= (10 x 12) inch by (8 x 12) inch [conversion from ft. to inch]

= 120 inch by 96 inch

Now, the largest size of tile required will be the HCF of 120 and 96.

So, applying Euclid's division lemma

We get,

$$120 = 96 \times 1 + 24$$

$$96 = 24 \times 4 + 0$$

$$\Rightarrow \text{HCF} = 24$$

Thus, we can conclude that the largest size of tile required is 24 inches

And,

Number of tiles required = (area of the bathroom) / (area of a tile)

$$= (120 \times 96) / (24 \times 24)$$

$$= 5 \times 4$$

$$= 20 \text{ tiles}$$

Therefore, 20 tiles each of size 24inch by 24inch are required to be cut.

**19. 15 pastries and 12 biscuit packets have been donated for a school fete. These are to be packed in several smaller identical boxes with the same number of pastries and biscuit packets in each. How many biscuit packets and how many pastries will each box contain?**

**Solution:**

From the question, it's given that,

Number of pastries = 15

Number of biscuit packets = 12

So, the required number of boxes which will contain an equal number of both pastries and biscuits will be the HCF of 15 and 12.

So, applying Euclid's division lemma, we get

$$15 = 12 \times 1 + 3$$

$$12 = 3 \times 4 + 0$$

So, the number of boxes required = 3

$\therefore$  Each box will contain  $15/3 = 5$  pastries and  $12/3 = 4$  biscuit packs.

**20. 105 goats, 140 donkeys and 175 cows have to be taken across a river. There is only one boat which will have to make many trips in order to do so. The lazy boatman has his own conditions for transporting them. He insists that he will take the same number of animals on every trip, and they have to be of the same kind. He will naturally like to take the largest possible number each time. Can you tell how many animals went on each trip?**

**Solution:**

From the question, it's given that,

Number of goats = 105

Number of donkeys = 140

Number of cows = 175

So, to find the largest number of animals in one trip, the HCF (105, 140 and 175) has to be calculated.

First, consider the numbers 105 and 140 and apply Euclid's division lemma

$$140 = 105 \times 1 + 35$$

$$105 = 35 \times 3 + 0$$

Thus, the HCF (105 and 140) = 35

Now, consider 35 and the third number 175 and apply Euclid's division lemma

$$175 = 35 \times 5 + 0$$

Hence, the HCF (105, 140, 175) = 35.

Therefore, it can be said that 35 animals went on each trip.

**21. The length, breadth and height of a room are 8 m 25 cm, 6 m 75 cm and 4 m 50 cm, respectively. Determine the longest rod which can measure the three dimensions of the room exactly.**

**Solution:**

From the question, it's given that

Length of the room = 8m 25 cm = 825 cm (converting into cm)

Breadth of the room = 6m 75cm = 675 cm

Height of the room = 4m 50cm = 450 cm

The required longest rod which can measure the room exactly is the HCF of 825, 675 and 450.

First, consider 675 and 450 and apply Euclid's division lemma,

$$675 = 450 \times 1 + 225$$

$$450 = 225 \times 2 + 0$$

Therefore, the HCF (675, 450) = 225

Now, consider 225 and the third dimension, i.e., 825

By applying Euclid's division lemma to the above,

$$825 = 225 \times 3 + 150$$

$$225 = 150 \times 1 + 75$$

$$150 = 75 \times 2 + 0 \text{ (Here, the remainder becomes 0)}$$

Thus, HCF (225, 825) = 75.

Therefore, HCF of 825, 675 and 450 is 75.

And the length of the longest rod is 75 cm or 0.75m.

**22. Express the HCF of 468 and 222 as  $468x + 222y$  where x, y are integers in two different ways.**

**Solution:**

Given that, we need to express the HCF of 468 and 222 as  $468x + 222y$ , where  $x$  and  $y$  are integers in two different ways.

So, here, the integers are: 468 and 222, and  $468 > 222$

Then, by applying Euclid's division lemma, we get

$$468 = 222 \times 2 + 24 \dots\dots\dots (1)$$

Since the remainder  $\neq 0$ , so apply the division lemma on divisor 222 and remainder 24

$$222 = 24 \times 9 + 6 \dots\dots\dots (2)$$

Since the remainder  $\neq 0$ , so apply the division lemma on divisor 24 and remainder 6

$$24 = 6 \times 4 + 0 \dots\dots\dots (3)$$

We observe that the remainder is 0.

So, the last divisor 6 is the HCF of 468 and 222

Now, in order to express the HCF as a linear combination of 468 and 222, we perform

$$6 = 222 - 24 \times 9 \text{ [from (2)]}$$

$$= 222 - (468 - 222 \times 2) \times 9 \text{ [from (1)]}$$

$$= 222 - 468 \times 9 + 222 \times 18$$

$$6 = 222 \times 19 - 468 \times 9 = 468(-9) + 222(19)$$

$$\therefore 6 = 468x + 222y, \text{ where } x = -9 \text{ and } y = 19.$$

## Benefits of Solving RD Sharma Solutions Class 10 Maths Chapter 1 Exercise 1.2

Solving the RD Sharma Solutions for Class 10 Maths Chapter 1 Exercise 1.2 provide several benefits for students looking to strengthen their understanding of irrational numbers. Here are some key benefits:

**Skill Development in Proving Irrationality:** Students learn to prove that certain numbers are irrational, enhancing their critical thinking and reasoning skills. This skill is important for higher-level mathematics and problem-solving.

**Step-by-Step Solutions:** The detailed step-by-step explanations provided in RD Sharma solutions make it easier for students to follow along and understand each concept thoroughly, reducing confusion.

**Enhanced Problem-Solving Abilities:** Regular practice with these solutions helps students develop a systematic approach to solving problems involving irrational numbers, which boosts their overall problem-solving capabilities.

**Preparation for Exams:** The exercise covers key topics that are often included in exams. By practicing these solutions students can improve their readiness and confidence for upcoming tests.

**Reinforcement of Mathematical Concepts:** Working through these exercises reinforces previously learned concepts about real numbers and prepares students for more advanced topics in mathematics.