Real Numbers Ex 1.2 Q11

Answer :

We need to find the largest number that divides 626, 3127 and 15628 and leaves remainders of 1, 2 and 3 respectively.

The required number when divides 626, 3127 and 15628 leaves remainders 1, 2 and 3 this means

$626-1=625, 3127-2=3125$ and $15628-3=15625$ are completely divisible by the number.

Therefore, the required number = H.C.F. of 625, 3125 and 15625.

First we consider 625 and 3125.

By applying Euclid's division lemma

$3125=625\times5+0.$

H.C.F. of 625 and 3125 = 625

Now, consider 625 and 15625.

By applying Euclid's division lemma

$15625=625\times25+0.$

Therefore, H.C.F. of 625, 3125 and 15625 = 625

Hence, the required number is $\boxed{625}$

Real Numbers Ex 1.2 Q12

Answer :

Find the greatest number that divides 445, 572 and 699 and leaves remainders of 4, 5 and 6 respectively.

The required number when divides 445, 572 and 699 leaves remainders 4, 5 and 6 this means

$445-4=441, 572-5=567$ and $699-6=693$ are completely divisible by the number.

Therefore, the required number = H.C.F. of 441, 567 and 693.

First consider 441 and 567.

By applying Euclid's division lemma

$567=441\times1+126$

$441=126\times3+63$

$126=63\times2+0.$

Therefore, H.C.F. of 441 and 567 = 63

Now, consider 63 and 693

By applying Euclid's division lemma

$693=63\times11+0.$

Therefore, H.C.F. of 441, 567 and 693 = 63

Hence, the required number is $\boxed{63}$.

Real Numbers Ex 1.2 Q13

Answer :

Find the greatest number which divides 2011 and 2623 leaving remainder 9 and 5 respectively.

The required number when divides 2011 and 2623 leaves remainders 9 and 5 this means

$2011-9=2002$ and $2623-5=2618$ are completely divisible by the number.

Therefore, the required number = H.C.F. of 2002 and 2618

By applying Euclid's division lemma

$2618=2002\times1+616$

$2002=616\times3+154$

$616=154\times4+0.$

H.C.F. of 2002 and 2618 = 154

Hence, the required number is $\boxed{154}$.

Real Numbers Ex 1.2 Q14

Answer :

We are given the length, breadth and height of a room as 8m 25cm, 6m 75cm and 4m 50cm, respectively. We need to determine the largest room which can measure the three dimensions of the room exactly.

We first convert each dimension in cm

Length of room = 8m 25cm = 825cm

Breadth of room = 6m 75cm = 675cm

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

Therefore, the required longest rod = H.C.F. of 825, 675 and 450.

First we consider 675 and 450.

By applying Euclid's division lemma

$675 = 450 \times 1 + 225$

$450 = 225 \times 2 + 0.$

Therefore, H.C.F. of 675 and 450 = 225

Now, we consider 225 and 825.

By applying Euclid's division lemma

$825 = 225 \times 3 + 150$

$225 = 150 \times 1 + 75$

$150 = 75 \times 2 + 0.$

Therefore, H.C.F. of 825, 675 and 450 = 75

Hence, the length of required longest rod is $\boxed{75\text{cm}}$

Real Numbers Ex 1.2 Q15

Answer :

We are given that, 105 goats, 140 donkeys and 175 cows. There is only one boat which will have to make many y 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 in every trip and they have to be of the same kind. He will naturally like to take the largest possible number each time. We need to tell the number of animals that went in each trip.

Given that

Number of goats = 105

Number of donkeys = 140

Number of cows = 175.

Therefore, the largest number of animals in 1 trip = H.C.F. of 105, 140 and 175.

First we consider 105 and 140.

By applying Euclid's division lemma

$140 = 105 \times 1 + 35$

$105 = 35 \times 3 + 0.$

Therefore, H.C.F. of 105 and 140 = 35

Now, we consider 35 and 175.

By applying Euclid's division lemma

$175 = 35 \times 5 + 0.$

Therefore, H.C.F. of 105, 140 and 175 = 35

Hence, the number of animals went in each trip is $\boxed{35}$.

********** END **********