Real Numbers Ex 1.2 Q5

Answer :

We need to find m if the H.C.F of 408 and 1032 is expressible in the form $1032\,m-408\times5$.

Given integers are 408 and 1032 where $408<1032$.

By applying Euclid's division lemma, we get $1032=408\times2+216.$

Since the remainder $\neq0$, so apply division lemma on divisor 408 and remainder 216

$408=216\times1+192.$

Since the remainder $\neq0$, so apply division lemma on divisor 216 and remainder 192

$216=192\times1+24.$

Since the remainder $\neq0$, so apply division lemma on divisor 192 and remainder 24

$192=24\times8+0.$

We observe that remainder is 0. So the last divisor is the H.C.F of 408 and 1032.

Therefore,

$$24=1032m-408\times5$$
$$\Rightarrow \quad 1032m=24+408\times5$$
$$\Rightarrow \quad 1032m=24+2040$$
$$\Rightarrow \quad 1032m=2064$$
$$\Rightarrow \quad m=\frac{2064}{1032}$$
$$\Rightarrow \quad \boxed{m=2}.$$

Real Numbers Ex 1.2 Q6

Answer :

We need to find x if the H.C.F of 657 and 963 is expressible in the form $657x+963y(-15)$.

Given integers are 657 and 963.

By applying Euclid's division lemma, we get $963=657\times1+306.$

Since the remainder $\neq0$, so apply division lemma on divisor 657 and remainder 306

$657=306\times2+45.$

Since the remainder $\neq0$, so apply division lemma on divisor 306 and remainder 45

$306=45\times6+36.$

Since the remainder $\neq0$, so apply division lemma on divisor 45 and remainder 36

$45=36\times1+9.$

Since the remainder $\neq0$, so apply division lemma on divisor 36 and remainder 9

$36=9\times4+0.$

Therefore, H.C.F. = 9.

Given H.C.F $=657x+936(-15)$.

Therefore,

$$\Rightarrow \quad 9=657x-14445$$
$$\Rightarrow \quad 9+14445=657x$$
$$\Rightarrow \quad 14454=657x$$
$$\Rightarrow \quad x=\frac{14454}{657}$$
$$\Rightarrow \quad \boxed{x=22}.$$

Real Numbers Ex 1.2 Q7

Answer :

We are given that 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. We need to find the maximum number of columns in which they can march.
Members in army = 616
Members in band = 32.
Therefore,
Maximum number of columns = H.C.F of 616 and 32.
By applying Euclid's division lemma
$616 = 32 \times 19 + 8$
$32 = 8 \times 4 + 0.$
Therefore, H.C.F. = 8
Hence, the maximum number of columns in which they can march is $\boxed{8}$.

Real Numbers Ex 1.2 Q8

Answer :

We need to find the largest number which divides 615 and 963 leaving remainder 6 in each case.
The required number when divides 615 and 963, leaves remainder 6, this means $615 - 6 = 609$ and $963 - 6 = 957$ are completely divisible by the number.
Therefore,
The required number = H.C.F. of 609 and 957.
By applying Euclid's division lemma
$957 = 609 \times 1 + 348$
$609 = 348 \times 1 + 261$
$348 = 216 \times 1 + 87$
$261 = 87 \times 3 + 0.$
Therefore, H.C.F. = 87.
Hence, the required number is $\boxed{87}$.

Real Numbers Ex 1.2 Q9

Answer :

We need to find the greatest number which divides 285 and 1249 leaving remainder 9 and 7 respectively.
The required number when divides 285 and 1249, leaves remainder 9 and 7, this means
$285 - 9 = 276$ and $1249 - 7 = 1242$ are completely divisible by the number.
Therefore, the required number = H.C.F. of 276 and 1242.
By applying Euclid's division lemma
$1242 = 276 \times 4 + 138$
$276 = 138 \times 2 + 0.$
Therefore, H.C.F. = 138
Hence, required number is $\boxed{138}$.

Real Numbers Ex 1.2 Q10

Answer :

We need to find the largest number which exactly divides 280 and 1245 leaving remainders 4 and 3, respectively.
The required number when divides 280 and 1245, leaves remainder 4 and 3, this means
$280 - 4 = 276$ and $1245 - 3 = 1242$ are completely divisible by the number.
Therefore, the required number = H.C.F. of 276 and 1242.
By applying Euclid's division lemma
$1242 = 276 \times 4 + 138$
$276 = 138 \times 2 + 0.$
Therefore, H.C.F. = 138.
Hence, the required number is $\boxed{138}$.

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