Real Numbers Ex 1.4 Q3

**Answer :**

TO FIND: Greatest number of 6 digits exactly divisible by 24, 15 and 36

The greatest 6 digit number be 999999

24, 15 and 36

$24 = 2^3 \times 3$

$15 = 3 \times 5$

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

L.C.M of 24,15 and 36 = $\boxed{360}$

Since $\frac{999999}{360} = 2777 \times 360 + 279$

Therefore, the remainder is 279.

Hence the desired number is equal to

$= 999999 - 279$

$\boxed{= 999720}$

Hence $\boxed{= 999720}$ is the greatest number of 6 digits exactly divisible by 24, 15 and 36.

Real Numbers Ex 1.4 Q4

**Answer :**

GIVEN: A rectangular yard is 18 m 72 cm long and 13 m 20 cm broad .It is to be paved with square tiles of the same size.

TO FIND: Least possible number of such tiles.

Length of the yard = 18 m 72 cm = 1800 cm + 72 cm = 1872 cm (∵ 1 m = 100 cm)

Breadth of the yard =13 m 20 cm = 1300 cm + 20 cm = 1320 cm

The size of the square tile of same size needed to the pave the rectangular yard is equal the HCF of the length and breadth of the rectangular yard.

Prime factorisation of 1872 = $2^4 \times 3^2 \times 13$

Prime factorisation of 1320 = $2^3 \times 3 \times 5 \times 11$

HCF of 1872 and 1320 = $2^3 \times 3 = 24$

∴ Length of side of the square tile = 24 cm

Number of tiles required = $\frac{\text{Area of the courtyard}}{\text{Area of each tile}} = \frac{\text{Lenght} \times \text{Breadth}}{(\text{Side})^2} = \frac{1872 \text{ cm} \times 1320 \text{ cm}}{(24 \text{ cm})^2} = 4290$

Thus, the least possible number of tiles required is 4290.

Real Numbers Ex 1.4 Q5

**Answer :**

TO FIND: Least number that is divisible by all the numbers between 1 and 10 (both inclusive)

Let us first find the L.C.M of all the numbers between 1 and 10 (both inclusive)

$1 = 1$

$2 = 2$

$3 = 3$

$4 = 2^2$

$5 = 5$

$6 = 2 \times 3$

$7 = 7$

$8 = 2^3$

$9 = 3^2$

$10 = 2 \times 5$

L.C.M = $\boxed{2520}$

Hence $\boxed{2520}$ is the least number that is divisible by all the numbers between 1 and 10 (both inclusive)

Real Numbers Ex 1.4 Q6

**Answer :**

TO FIND: Smallest number that, when divided by 35, 56 and 91 leaves remainder of 7 in each case

L.C.M OF 35, 56 and 91

$35 = 5 \times 7$

$56 = 2^3 \times 7$

$91 = 13 \times 7$

L.C.M of 35,56 and 91 $= 2^3 \times 5 \times 7 \times 13$

$\boxed{= 3640}$

Hence 84 is the least number which exactly divides 28, 42 and 84 i.e. we will get a remainder of 0 in this case. But we need the smallest number that, when divided by 35, 56 and 91 leaves remainder of 7 in each case

Therefore

$= 3640 + 7$

$\boxed{= 3647}$

Hence $\boxed{= 3647}$ is smallest number that, when divided by 35, 56 and 91 leaves remainder of 7 in each case.

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