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# CBSE 10th Real Number Unsolved Paper 

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# CBSE $10^{\text {th }}$ Real Number Unsolved Paper 

## Question 1:

Use Euclid's division algorithm to find the HCF of:
(i) 135 and 225
(ii) 196 and 38220
(iii) 867 and 225

## Question 2:

Use Euclid's division lemma to show that the square of any positive integer is either of form $3 m$ or $3 m+1$ for some integer $m$.

Hint: let $\boldsymbol{x}$ be any positive integer then it is of the form $\mathbf{3 q}, \mathbf{3 q}+1$ or $\mathbf{3 q}+\mathbf{2}$.
[Now square each of these and show that they can be rewriteen in the fomr $\mathbf{3 m}$ or $\mathbf{3 m}+1$ ]

## Question 3:

Use Euclid's division lemma to show that the cube of any positive integer is of the form $\mathbf{9 m}$, $9 m+1$ or $9 m+8$.

## Question 4:

Find the LCM and HCF of the following pairs of integers and verify that
$\mathbf{L C M} \times \mathbf{H C F}=$ product of the two numbers.
(i) 26 and 91
(ii) 510 and 92
(iii) 336 and 54

## Question 5:

Find the LCM and HCF of the following integers by applying the prime factorization method.
(i) 12,15 and 21
(ii) 17,23 and 29
(iii) 8,9 and 25

## Question 6:

Prove that $\sqrt{5}$ is irrational.

## Question 7:

Prove that $3+2 \sqrt{5}$ is irrational.

## Question 8:

Prove that the following are irrationals:
(i) $\frac{1}{\sqrt{2}}$
(ii) $7 \sqrt{5}$
(iii) $6+\sqrt{2}$

## Question 9:

Show that any positive odd integer is of the form $\mathbf{6 q}+1$ or, $6 q+3 o r, 6 q+$ 5 , where $q$ is some integer.

Question 10:
Prove that the square of any positive integer is of the form $\mathbf{4 q}$ or $\mathbf{4 q}+\mathbf{1}$ for some integer q.
Q. 11 Prove that if a positive integer is of the form $\mathbf{6 q}+5$, then it is of the form $\mathbf{3 q}+\mathbf{2}$ for some integer $q$, but not conversely.
Q. 12 Prove that the product of three consecutive positive integer is divisible by 6.
Q.13 For any positive integer $n$, prove that $\boldsymbol{n}^{\mathbf{3}}-\mathbf{n}$ divisible by 6 .
Q. 14 Define HOE of two positive integers and find the HCF of the following pairs of numbers:
(i) 32 and 54
(ii) 18 and 24
(iii) 70 and 30
(iv) 56 and 88
(v) 475 and 495
Q. 15 Use Euclid's division algorithm to find the HCF of
(i) $\mathbf{1 3 5}$ and 225 (ii) 196 and 38220
Q. 17 If the HCF of 408 and 1032 is expressible in the form $1032 \mathrm{~m}-408 \times 5$, find m .
Q. 18 If the HCF of 657 and 963 is expressible in the form $657 x+963 x-15$, find $x$.
Q. 19 Find the largest number which divides 615 and 963 leaving remainder 6 in each case.
Q. 20 Find the greatest number which divides 285 and 1249 leaving remainders 9 and 7 respectively.
Q. 21 Find the largest number which exactly divides 280 and 1245 leaving remainders 4 and 3 , respectively.

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