FREE NCERT SOLUTIONS

CLASS - 10

REAL NUMBERS

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EXERCISE 1.1 - Question No. 1

Use Euclid's division algorithm to find the HCF of (i) 135 and 225

(ii) 196 and 38220 (iii) 867 and 255

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EXERCISE 1.1 - Question No. 2

Show that any positive odd integer is of the form $6q + 1$ or $6q + 3$

or $6q + 5$, where q is some integer

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EXERCISE 1.1 - Question No. 3

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?

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EXERCISE 1.1 - Question No. 4

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

[Hint: Let x be any positive integer then it is of the form $3q$,

$3q+1$ or $3q+2$ Now square each of these and sho

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EXERCISE 1.1 - Question No. 5

Use Euclid's division lemma to show that the cube of any positive

integer is of the form $9m$, $9m+1$ or $9m+8$.

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EXERCISE 1.2 - Question No. 1

Express each number as a product of its prime factors (i) 140 (ii)

156 (iii) 3825 (iv) 5005 (v) 7429

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EXERCISE 1.2 - Question No. 2

Find the LCM and HCF of the following pairs of integers and verify that L$LCM \times HCF =$ product of the two numbers. (i) 26 and91 (ii) 510 and 92 (iii) 336 and 54

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EXERCISE 1.2 - Question No. 3

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

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EXERCISE 1.2 - Question No. 4

Given that HCF (306, 657) = 9, find LCM (306, 657).

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EXERCISE 1.2 - Question No. 5

Check whether 6^n can end with the digit 0 for any natural number n.

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EXERCISE 1.2 - Question No. 6

Explain why $7 \times 11 \times 13 + 13$ and

$7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1 + 5$ are composite numbers.

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EXERCISE 1.2 - Question No. 7

There is a circular path around a sports field. Soma takes 18 minutes to drive one round of the field, while Ravi takes 12 minutes for the same. Suppose they both start at the same point and at the same time, and go in the same direction. After how many minutes will they meet again at the starting point?

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EXERCISE 1.3 - Question No. 1

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

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EXERCISE 1.3 - Question No. 2

Prove that $3 + 2\sqrt{5}$ is irrationals :

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EXERCISE 1.3 - Question No. 3

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

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EXERCISE 1.4 - Question No. 1

Without actually performing the long division, state whether the following rational numbers will have a terminating decimal expansion or a non-terminating repeating decimal expansion: (i) $\frac{13}{3125}$ (ii) $\frac{17}{8}$ (iii) $\frac{64}{455}$ (iv) `(15)/

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EXERCISE 1.4 - Question No. 2

Write down the decimal expansions of those rational numbers m Question 1 above which have terminating decimal expansions.

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EXERCISE 1.4 - Question No. 3

The following real numbers have decimal expansions as given below. In each case, decide whether they are rational or not. If they are rational, and of the form $\frac{p}{q}$, what can you say about the prime factors of q? (i)43. 123456789 (ii) `0. 1201

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SOLVED EXAMPLES - Question No. 1

Use Euclid's algorithm to find the HCF of 4052 and 12576.

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SOLVED EXAMPLES - Question No. 2

Show that every positive even integer is of the form 2q, and that every positive odd integer is of the form $2q + 1$, where q is some integer.

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SOLVED EXAMPLES - Question No. 3

Show that any positive odd integer is of the form $4q + 1$ or $4q + 3$, where q is some integer.

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SOLVED EXAMPLES - Question No. 4

A sweet seller has 420 kaju barfis and 130 badam barfis. She wants to stack them in such a way that each stack has the same number and they take up the least area of the tray. What is the maximum number of barfis that can be placed in each stack for this purpose?

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SOLVED EXAMPLES - Question No. 5

Consider the numbers 4^n , where n is a natural number. Cheek whether there is any value of n for which 4^n ends with the digit zero.

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SOLVED EXAMPLES - Question No. 6

Find the LCM and HCF of 6 and 20 by the prime factorisation method.

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SOLVED EXAMPLES - Question No. 7

Find the HCF of 96 and 404 by the prime factorisation method.

Hence, find their LCM.

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SOLVED EXAMPLES - Question No. 8

Find the HCF and LCM of 6, 72 and 120, using the prime factorisation method.

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SOLVED EXAMPLES - Question No. 9

Prove that $\sqrt{3}$ is irrational.

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SOLVED EXAMPLES - Question No. 10

Show that $5 - \sqrt{3}$ is irrational.

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SOLVED EXAMPLES - Question No. 11

Show that $3\sqrt{2}$ is irrational.

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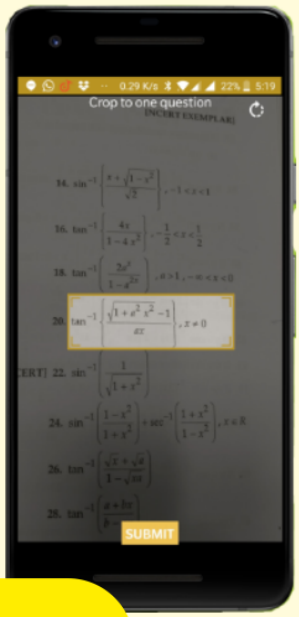

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