

Class 10 Mathematics
Practice Paper

Real Numbers

1. Express 140 as a product of its prime factors
2. Find the LCM and HCF of 12, 15 and 21 by the prime factorization method.
3. Find the LCM and HCF of 6 and 20 by the prime factorization method.
4. State whether $\frac{133125}{133125}$ will have a terminating decimal expansion or a non-terminating repeating decimal.
5. State whether $\frac{178178}{178178}$ will have a terminating decimal expansion or a non-terminating repeating decimal.
6. Find the LCM and HCF of 26 and 91 and verify that $\text{LCM} \times \text{HCF} =$ product of the two numbers.
7. Use Euclid's division algorithm to find the HCF of 135 and 225
8. 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 .
9. How many irrational numbers lie between 2 and 3 ? Write any two of them.
10. 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.
11. Check whether 6^n can end with the digit 0, for any natural number n .
12. State fundamental theorem of Arithmetic. Using it check whether there is any value of n for which 5^n ends with the digit zero.
13. Show that 12^n cannot end with the digit 0 or 5 for any natural number n .
14. If the HCF of 210 and 55 is expressible in the form $210 \times 5 + 55y$ then find y .
15. Prove that $\sqrt{3}$ is irrational.
16. Show that $5 - 3\sqrt{5} - 3$ is irrational
17. Show that any positive odd integer is of the form $6q + 1$, or $6q + 3$, or $6q + 5$, where q is some integer.

18. 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?
19. Express 156 as a product of its prime factors.
20. Express 23150 as product of its prime factors. Is it unique?
21. Solve $18\sqrt{50} - \sqrt{18} \times 50$. What type of number is it, rational or irrational?
22. Find the LCM and HCF of 17, 23 and 29 by the prime factorization method.
23. Find the HCF and LCM of 12, 36 and 160, using the prime factorization method.
24. State whether 615615 will have a terminating decimal expansion or a non-terminating repeating decimal.
25. State whether 35503550 will have a terminating decimal expansion or a non-terminating repeating decimal.
26. What type of decimal expansion will 69606960 represent? After how many places will the decimal expansion terminate?
27. Find the LCM and HCF of 192 and 8 and verify that $\text{LCM} \times \text{HCF} =$ product of the two numbers.
28. Use Euclid's algorithm to find the HCF of 4052 and 12576.
29. Show that any positive odd integer is of the form of $4q + 1$ or $4q + 3$, where q is some integer.
30. 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 .
31. Prove that $32\sqrt{5} - 5$ is irrational.
32. Prove that $12\sqrt{12}$ is irrational.
33. In a school, there are two sections- section A and Section B of class X. There are 32 students in section A and 36 students in section B. Determine the minimum number of books required for their class library so that they can be distributed equally among students of section A or section B.
34. Express 3825 as a product of its prime factors.
35. Find the LCM and HCF of 8, 9 and 25 by the prime factorization method.

36. Find the HCF and LCM of 6, 72 and 120, using the prime factorization method.
37. State whether 2934329343 will have a terminating decimal expansion or a non-terminating repeating decimal.
38. State whether 232325232325 will have a terminating decimal expansion or a non-terminating repeating decimal.
39. Find the LCM and HCF of 336 and 54 and verify that $\text{LCM} \times \text{HCF} = \text{product of the two numbers}$
40. Given that $\text{HCF}(306, 657) = 9$, find $\text{LCM}(306, 657)$.
41. Use Euclid's division algorithm to find the HCF of 867 and 255
42. 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.
43. Prove that $75 - \sqrt{75}$ is irrational.
44. Prove that $5 - \sqrt{5}$ is irrational
45. There is a circular path around a sports field. Sonia 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?
46. On a morning walk, three persons step off together and their steps measure 40 cm, 42 cm and 45 cm, respectively. What is the minimum distance each should walk so that each can cover the same distance in complete steps?
47. Express 5005 as a product of its prime factors.
48. Find the prime factorisation of the denominator of the rational number equivalent to 8.39 .
49. Find the prime factorisation of the denominator of the rational number equivalent to $1.033.50$.
50. Find the LCM and HCF of 24, 36 and 72 by the prime factorization method.
51. Find the LCM and HCF of 96 and 404 by the prime factorization method
52. State whether 6445564455 will have a terminating decimal expansion or a non-terminating repeating decimal
53. State whether 151600151600 will have a terminating decimal expansion or a non-terminating repeating decimal.

54. Find the LCM and HCF of 510 and 92 and verify that $\text{LCM} \times \text{HCF} = \text{product of the two numbers}$.
55. Use Euclid's division algorithm to find the HCF of 196 and 38220
56. Use Euclid's division lemma to show that the cube of any positive integer is of the form $9m, 9m + 1$ or $9m + 8$
57. Show that every positive odd integer is of the form $2q$, and that every positive odd integer is of the form $2q + 1$, where q is some integer
58. Show that $32 - \sqrt{32}$ is irrational.
59. Prove that $3 + 25 - \sqrt{3 + 25}$ is irrational.
60. 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?
61. A sweet shopkeeper prepares 396 gulab jarnuns and 342 ras-gullas. He packs them in 4 containers. Each container consists of either gulab jamun or ras-gullas but have equal number of pieces. Find the number of pieces he should put in each box so that numbers of boxes are least.
62. Pens are sold in pack of 8 and notepads are sold in pack of 12. Find the least number of pack of each type that one should buy so that there are equal number of pen and notepads.
63. Use Euclid's division algorithm to find the HCF of:
- 135 and 225
 - 196 and 38220
 - 867 and 255.
64. Find the largest possible positive integer that will divide 398, 436, and 542 leaving remainder 7, 11, 15 respectively.
65. Using Euclid's division algorithm, find the largest number that divides 1251, 9377 and 15628 leaving remainders 1, 2 and 3, respectively.
66. Find the least number that is divisible by all numbers between 1 and 10 (both inclusive).
67. Prove that $n^3 - n$ is divisible by 3 for every positive integer n .

OR

Prove that one of every three consecutive integers is divisible by 3.

68. Show that the product of 3 consecutive positive integers is divisible by 6. (SAME AS ABOVE)
69. Prove that $n^2 - n$ is divisible by 2 for every positive integer n .
70. If n is an odd integer, then show that $n^2 - 1$ is divisible by 8.
71. Find the greatest number of 6 digits exactly divisible by 24, 15 and 36.
72. Find the greatest 5 digit number which is exactly divisible by 12, 18 and 24.

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