



MATHS

BOOKS - CBSE COMPLEMENTARY

MATERIAL MATHS (HINGLISH)

REAL NUMBERS

Very Short Answer Type Questions

1. The number N when divided by 16 gives the remainder 5 _____ is the remainder

when the same number is divided by 8.



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2. HCF of $3^3 \times 5^4$ and $3^4 \times 5^2$ is _____.



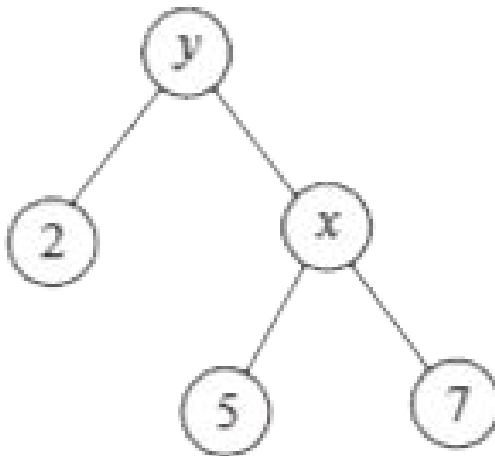
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3. If $a = xy^2$ and $b = x^3y^5$ where x and y are prime numbers then LCM of (a,b) is _____.



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4. If factor tree find x and y



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5. If n is a natural numbers then $25^{2n} - 9^{2n}$ is always divisible by

A. 16

B. 34

C. both 16 or 34

D. None of these

Answer: c



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6. The decimal expansion of the rational

number $\frac{327}{2^3 \times 5}$ will terminate after

A. one decimal place

B. Two decimal place

C. Three decimal place

D. More than three decimal place

Answer: C



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7. Which of the following rational numbers

have terminating decimal (i) $\frac{16}{225}$ (ii) $\frac{5}{18}$ (iii)

$\frac{2}{21}$ (iv) $\frac{7}{250}$

A. I and iii

B. ii and iii

C. I and iii

D. I and iv

Answer: D



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8. Euclid's division Lemma states that for two positive integers a and b , there exist unique

integers q and r such that $a = bq + r$ where r must satisfy.

A. $1 < r < b$

B. $0 < r \leq b$

C. $0 \leq r < b$

D. $0 < r < b$

Answer: C



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9. $p^n = (a \times 5)^n$ For p^n to end with the digit zero a — _____ for natural number of n .

A. any natural number

B. even number

C. odd number

D. none of these

Answer: B



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10. HCF is always

A. multiple of LCM

B. Factor of LCM

C. divisible by LCM

D. a and c both

Answer: B



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11. All decimal numbers are

A. rational number

B. irrational numbers

C. real numbers

D. integers

Answer: C



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12. Which of these numbers always end with the digit 6.

A. 4^n

B. 2^n

C. 6^n

D. 8^n

Answer: C



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13. Write the general form of an even integer



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14. Write the form in which every odd integer can be written taking t as variable.



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15. What would be the values of n for which $n^2 - 1$ is divisible by 8.



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16. What can you say about the product of a non zero rational and irrational number?

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17. After how many places the decimal expansion of $\frac{13497}{1250}$ will terminate?

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18. Find the least number which is divisible by all numbers from 1 to 10 (both inclusive).



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19. The number of 525 and 3000 are divisible by 3,5,15,25 and 75 what is the HCF of 525 and 3000?



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20. What will be the digit at unit's place of 9^n ?



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Short Answer Type Question I

1. If n is an odd integer then show that $n^2 - 1$ is divisible by 8.



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2. Use Euclid's division algorithm to find the HCF of 16 and 28.



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3. Show that 12^n cannot end with the digits 0 or 5 for any natural number n



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4. Without actual performing the long division find if $\frac{395}{10500}$ will have terminating or non terminating (repeating decimal expansion).



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5. A rational number in its decimal expansion is 327.7081. What can you say about the prime factors of q , when this number is expressed in the form $\frac{p}{q}$? Give reason



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6. What is the smallest number by which $\sqrt{5} - \sqrt{2}$ is to be multiplied to make it a rational number? Also find the number so obtained?



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7. Find one rational and one irrational no between $\sqrt{3}$ and $\sqrt{5}$.



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8. If HCF of 144 and 180 is expressed in the form $13m-16$. Find the value of m .



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9. Find the value of

$$(-1)^n + (-1)^{2n} + (-1)^{2n+1} + (-1)^{4n+2},$$

where n is any positive and integer.



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



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11. Two tankers contain 850 litres and 680 litres of petrol respectively. Find the maximum capacity of a container which can measure the petrol of either tanker in exact number of times.





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Short Answer Type Question li

1. Show that cube of any positive integer is of the form $4m$, $4m+1$ or $4m+3$, for some integer m .



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2. Prove that $\sqrt{3}$ is an irrational number.



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3. State fundamental theorem of arithmetic and hence find the unique factorization of 120.



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



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5. Prove that $5 - \frac{3}{7}\sqrt{3}$ is an irrational number.



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6. Prove that $\frac{1}{2 - \sqrt{5}}$ is an irrational number.



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7. Find HCF and LCM of 56 and 112 by prime factorization method.



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8. Explain why: $7 \times 11 \times 13 \times 15 + 15$ is a composite number.



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9. Explain why: $11 \times 13 \times 17 + 17$ is a composite number.



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10. Explain why: $1 \times 2 \times 3 \times 5 \times 7 + 3 \times 7$ is a composite number.



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11. In a morning walk, three persons step off together and their steps measure 40cm , 42cm and 45cm , respectively. What is the minimum distance each should walk so that each can cover the same distance in complete steps?



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12. During a sale, colour pencils were being sold in packs of 24 each and crayons in packs of 32 each. If you want full packs of both and the same number of pencils and crayons, how many of each would you need to buy?



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13. Find the largest number that divides 32 and 99 having leaving remainder 5 and 8 respectively.



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14. The HCF of 65 and 117 is expressible in the form $65m - 117$. Find the value of m . also find the LCM of 65 and 117 using prime factorisation method.



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15. Using Euclid's division algorithm, find the largest number that divides 1251, 9377 and

15628 leaving remainders 1, 2 and 3, respectively.



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16. Show that the square of any odd integer is of the form $4m+1$, for some integer m .



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17. Find the HCF of 180, 252 and 324 by Euclid's Division algorithm.



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18. Find the greatest number of six digits exactly divisible by 18, 24 and 36.



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19. Three bells toll at intervals of 9, 12, 15 minutes. If they start tolling together, after what time will they next toll together ?



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20. Show that one and only one out of n , $n + 2$ or $n + 4$ is divisible by 3, where n is any positive integer.



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21. Find HCF and LCM of 404 and 96 and verify that $HCF \times LCM =$ product of the two given numbers



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Long Answer Type Question

1. Find the HCF of 960 and 432.



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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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3. Prove that the square of any positive integer is of the form $5q$, $5q + 1$, $5q + 4$ for some integer q .



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4. prove that the product of three consecutive positive integers is divisible by 6.



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5. For any positive integer n , prove that $n^3 - n$ is divisible by 6.



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6. Show that one and only one out of n , $n + 2$ or $n + 4$ is divisible by 3, where n is any positive integer.



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7. Aakriti decided to distribute milk in an orphanage on her birthday. The supplier brought two milk containers which contain 398 l and 436 l of milk. The milk is to be transferred to another containers so that 7 l and 11 l of milk is left in both the containers respectively. What will be the maximum capacity of the drum?



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8. Find the smallest number which when increased by 17 is exactly divisible by both 520 and 468.



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9. A street shopkeeper prepares 396 Gulab jamuns and 342 ras-gullas. He packs them, in combination. Each container consists of either gulab jamuns or ras gullab but have equal number of pieces.

Find the numbers of pieces he should put in each box so that number of boxes are least.



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10. Show that the square of any positive integer cannot of the form $5q+2$ or $5q+3$ for some integer q .



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11. Express the HCF of numbers 72 and 124 as a linear combination of 72 and 124.



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12. Show that there is no positive integer n for which $\sqrt{n-1} + \sqrt{n+1}$ is rational.



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13. Find the HCF of numbers 134791, 6341 and 6339 by Euclid's division algorithm.



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14. In a seminar, the number of participants in Hindi, English and Mathematics are 60, 84 and 108 respectively. Find the minimum number of rooms required if, in each room the same number of participants are to

be seated and all of them being in the same subject.



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15. State fundamental theorem of Arithmetic.

Is it possible that HCF and LCM of two numbers be 24 and 540 respectively. Justify your answer.



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