



MATHS

BOOKS - OSWAL PUBLICATION

REAL NUMBERS

Example

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



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3. Use Euclid's division algorithm, to find the HCF of 176 and 38220



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



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5. If the HCF and LCM of two numbers are 9 and 360 , respectively . If one number is 45 , find the other number



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6. Write one rational and one irrational number lying between 0.25 and 0.32



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7. Given that $\sqrt{5}$ is irrational, prove that $2\sqrt{5} - 3$ is an irrational number.



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Self Assessment 1 | M C Q

1. HCF of 168 and 126 is

A. 21

B. 42

C. 14

D. 18

Answer:



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2. HCF of k , $2k$, $3k$, $4k$, and $5k$ is

A. k

B. k^2

C. k^5

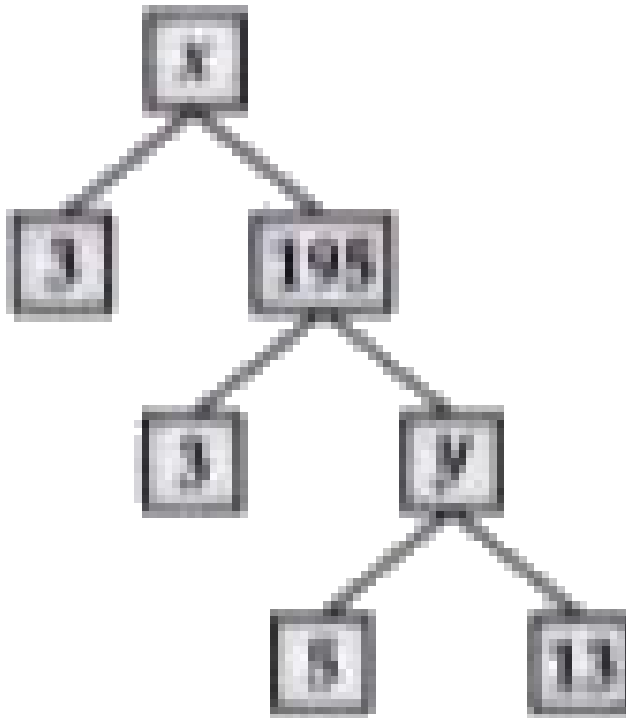
D. $5k$

Answer:



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3. In the following factor tree, values of x and y are:



A. $x = 858, y = 65$

B. $x = 585, y = 65$

C. $x = 858, y = 56$

D. $x = 195, y = 13$

Answer: B



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Self Assessment 1 | Fill In The Blanks

1. $\sqrt{2}$ is an _____



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2. $\text{LCM}(a,b) \times \text{HCF}(a,b) =$ _____



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3. LCM of 18, 24 is _____



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Self Assessment 1 | Very Short Answer Type Questions

1. Two positive integers a and b can be written as

$a = x^3y^2$ and $b = xy^3$, x, y are prime numbers .

Find HCF (a, b)



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2. Explain why 13233343563715 is a composite number ?



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3. If HCF of 150 and 100 is 50, find LCM of 150 and 100



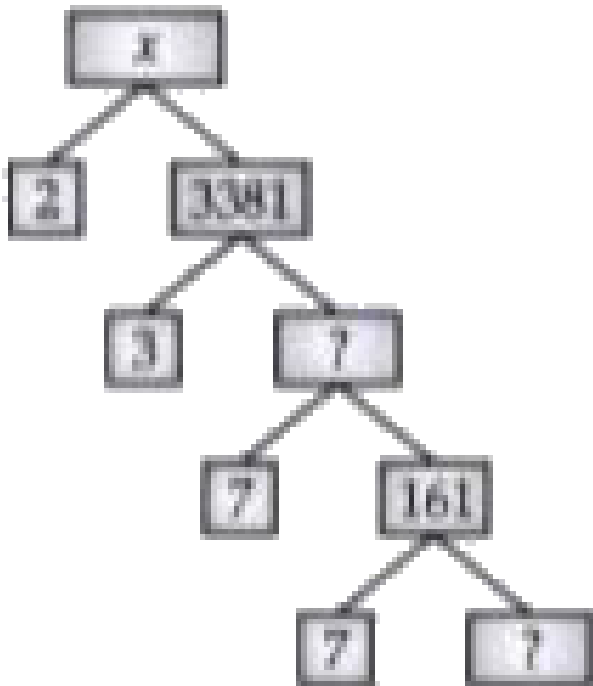
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Self Assessment 1 | Short Answer Type Questions

1. Write the smallest number which is divisible by both 306 and 657

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2. Complete the following factor tree and find the composite number x





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Self Assessment 1 iii Short Answer Type Questions

1. The length, breadth and height of a room are 8 m 50 m, 6 m 25 cm and 4 m 75 cm respectively . Find the length of the longest rod that can measure the dimensions of the room exactly



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2. Find HCF and LCM of 404 and 96 and verify that
 $\text{HCF} \times \text{LCM} = \text{Product of two given numbers} .$



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3. The HCF of 85 and 119 is expressible in the form
 $25m - 108$. Find the value of m .



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Self Assessment 1 Iv Long Answer Type Questions

1. Can the number 9^n , n being a natural number, end with the digit 5 ? Give reasons



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2. Find LCM of 252 and 105.



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Self Assessment 2 | M C Q

1. 325 can be expressed as a product of its primes
as

A. $5^2 \times 7$

B. $5^2 \times 13$

C. 5×13^2

D. $2 \times 3^2 \times 5^2$

Answer:



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2. The smallest positive rational number by which $\frac{1}{7}$ should be multiplied so that its decimal expansion terminates after 2 places of decimal is

A. $\frac{100}{7}$

B. $\frac{7}{100}$

C. $\frac{1}{100}$

D. $\frac{1}{7}$

Answer: B



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3. Which of the following is the decimal expansion of an irrational number

A. 4.561

B. $0.\overline{12}$

C. 5.010010001...

D. 6.03

Answer: C



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1. $\frac{2\sqrt{3}}{5}$ is _____ number



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2. A number that can be expressed as $\frac{p}{q}$, where p , q are integers and $q \neq 0$, is called a _____ number



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3. The decimal fractions of $\frac{14}{5}$ is _____



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Self Assessment 2 | Very Short Answer Type Questions

1. After how many decimal places will the decimal expansion of $\frac{23}{2^4 \times 5^3}$ terminate ?



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2. Write whether the rational number $\frac{7}{75}$ will have a terminating decimal expansion or non-terminating repeating decimal expansion .



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3. Write whether $\frac{2\sqrt{45} + 3\sqrt{20}}{2\sqrt{5}}$ on simplification gives an irrational or a rational number .



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Self Assessment 2 | Short Answer Type Questions I

1. Show that $5\sqrt{6}$ is an irrational number



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2. Show that $7 - \sqrt{5}$ is irrational , given that $\sqrt{5}$ is irrational



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Self Assessment 2 | Short Answer Type Questions | I

1. An army contingent of 912 members is march behind an army band of 123 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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2. Express $\left(\frac{15}{4} + \frac{5}{40}\right)$ as decimal fraction with actual division

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3. Using Euclid's Algorithm, find the HCF of 2048 and 960

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Self Assessment 2 li Long Answer Type Questions

1. Prove that $\sqrt{7}$ is an irrational number.



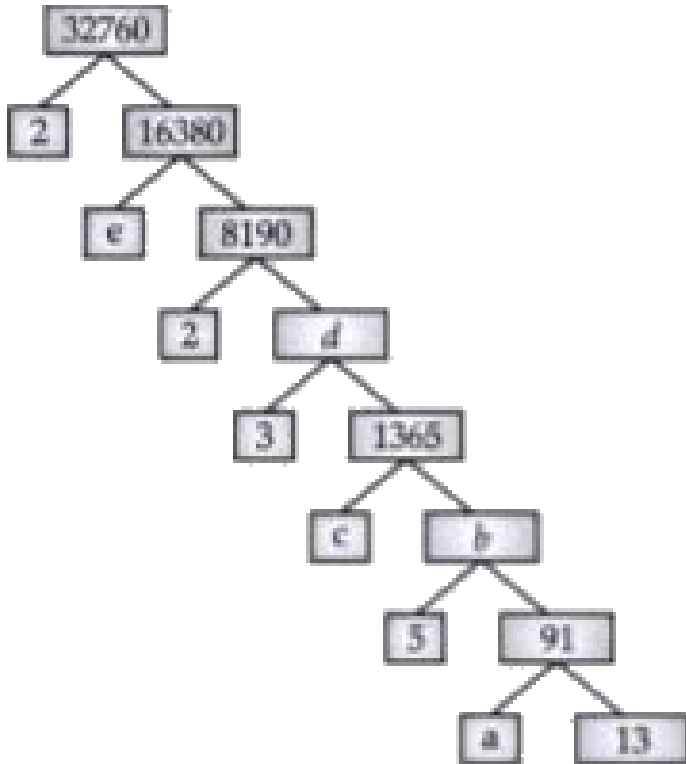
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2. Prove that $\sqrt{3}$ is an irrational number.



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Self Assessment 2 | Case Study Based Questions



1.

Here , number 32760 is represented as the Product of its Prime factors using the factor tree .

Find the value of a

A. 7

B. 5

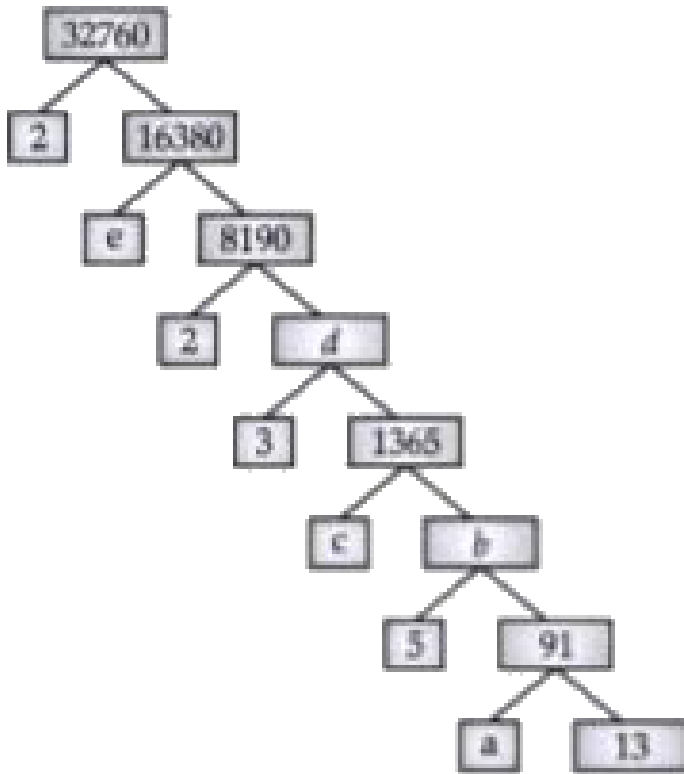
C. 2

D. 3

Answer:



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2.

Here , number 32760 is represented as the Product of its Prime factors using the factor tree .

Find the value of b

A. 2

B. 455

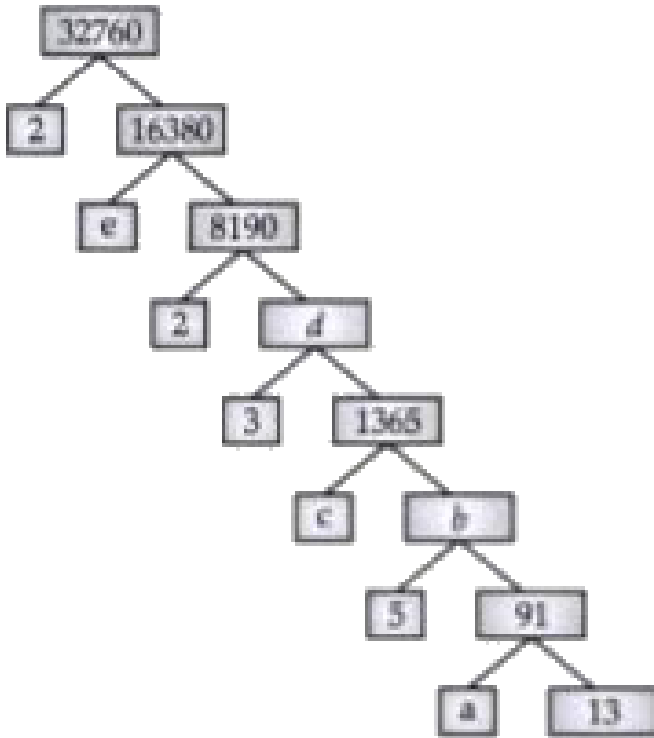
C. 91

D. 1365

Answer:



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3.

Here , number 32760 is represented as the Product of its Prime factors using the factor tree .

Find the value of c

A. 2

B. 3

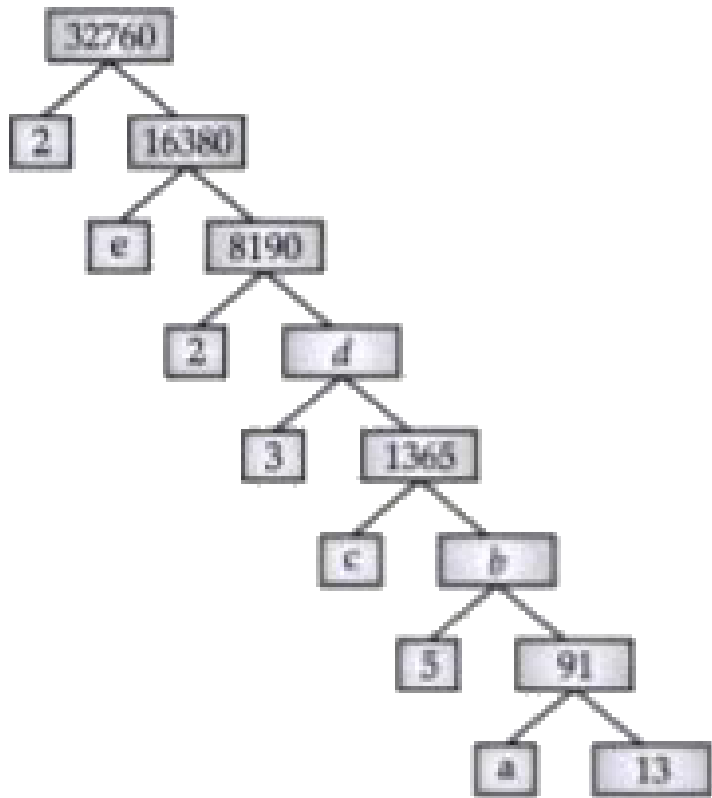
C. 5

D. 7

Answer:



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4.

Here , number 32760 is represented as the Product of its Prime factors using the factor tree .

Find the value of d

A. 8190

B. 1365

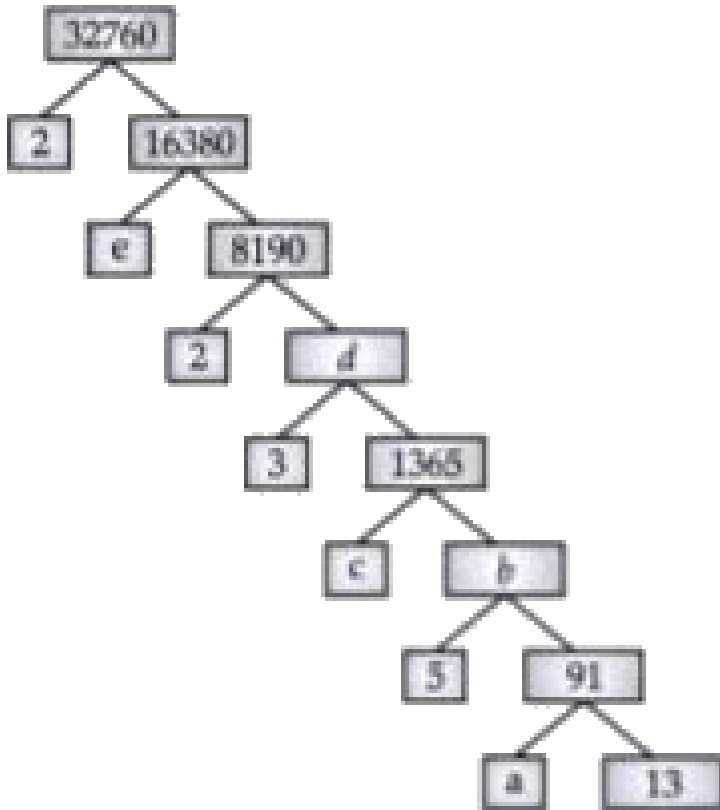
C. 455

D. 4095

Answer:



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5.

Here , number 32760 is represented as the Product of its Prime factors using the factor tree .

Find the value of e

A. 2

B. 3

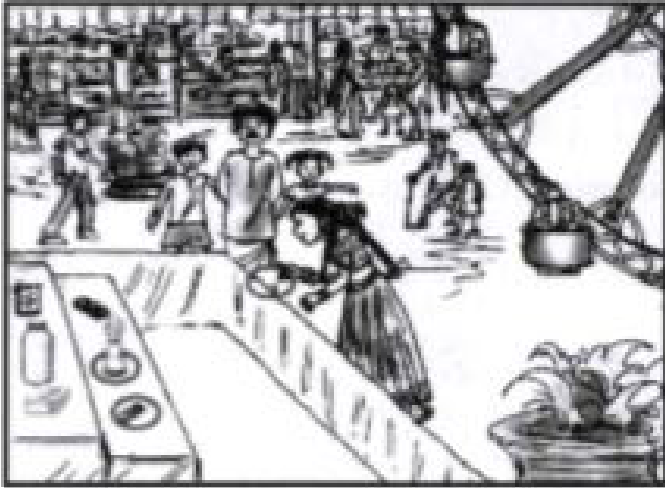
C. 5

D. 7

Answer: A



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6.

Sohan and Rata are two friends . They went to a fair in their village. Sohan has Rs. 200 and Rita has Rs. 250 . Sohan wanted to enjoy ride on the Giant wheel while Rita Played Hoopla. They enjoyed the ice-cream, fruits, burger etc and purchased some toys. They spent all of their money

Write the prime factor of Rs. 200

A. $2^3 \times 5^2$

B. $2^2 \times 5^3$

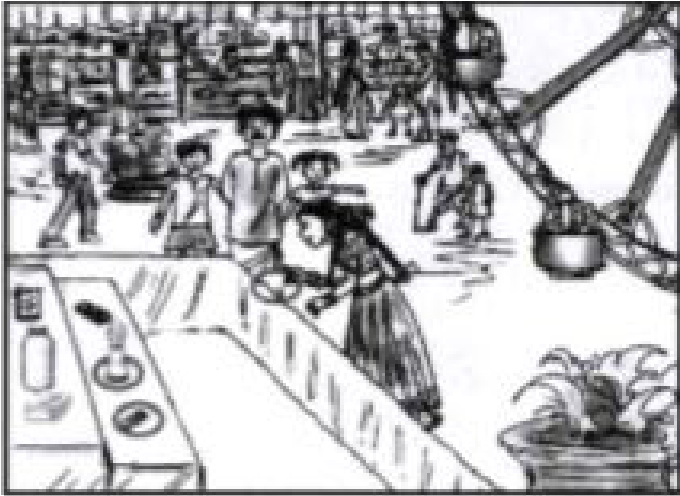
C. $2^2 \times 5^3$

D. 2×5^3

Answer:



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7.

Sohan and Rata are two friends . They went to a fair in their village. Sohan has Rs. 200 and Rita has Rs. 250 . Sohan wanted to enjoy ride on the Giant wheel while Rita Played Hoopla. They enjoyed the ice-cream, fruits, burger etc and purchased some toys. They spent all of their money

Find the Prime factor of Rs. 250

A. $2^2 \times 5^2$

B. $2^2 \times 5^3$

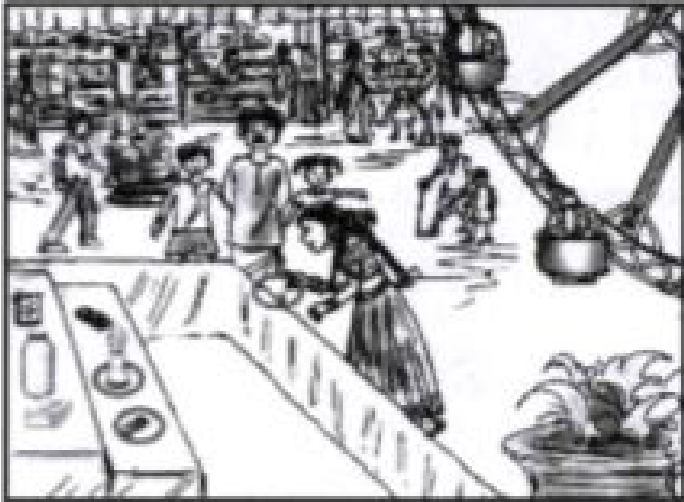
C. 2×5^2

D. 2×5^3

Answer:



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8.

Sohan and Rata are two friends . They went to a fair in their village. Sohan has Rs. 200 and Rita has Rs. 250 . Sohan wanted to enjoy ride on the Giant wheel while Rita Played Hoopla. They enjoyed the ice-cream, fruits, burger etc and purchased some toys. They spent all of their money

Find the LCM of two numbers 200 and 250

A. 800

B. 500

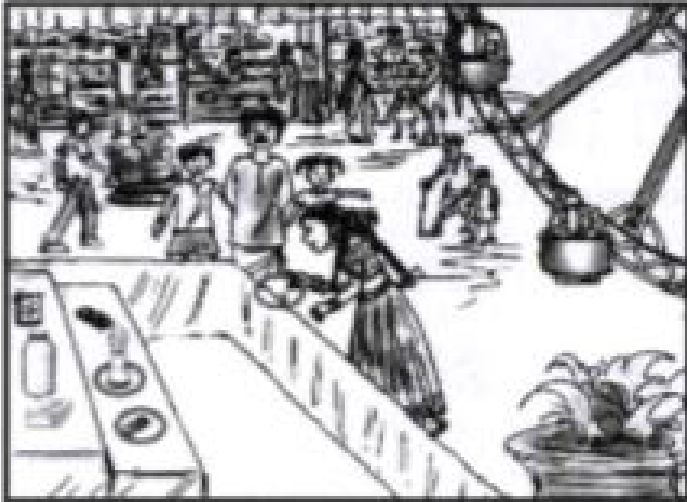
C. 1000

D. 200

Answer:



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9.

Sohan and Rata are two friends . They went to a fair in their village. Sohan has Rs. 200 and Rita has Rs. 250 . Sohan wanted to enjoy ride on the Giant wheel while Rita Played Hoopla. They enjoyed the ice-cream, fruits, burger etc and purchased some toys. They spent all of their money

Find the HCF of two numbers 200 and 250

A. 100

B. 50

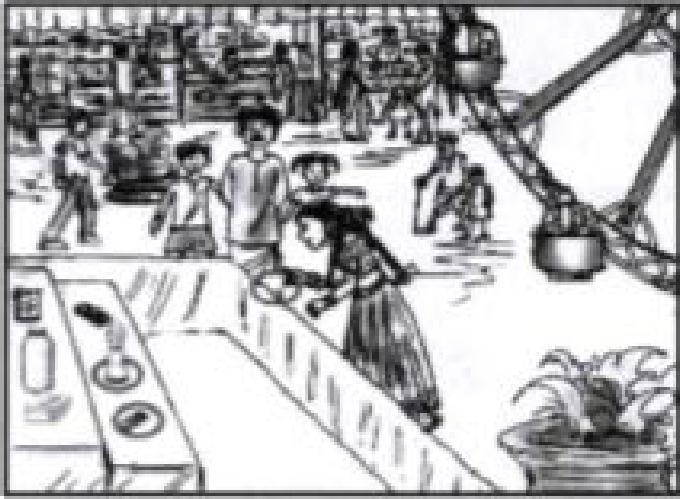
C. 60

D. 40

Answer:



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10.

Sohan and Rata are two friends . They went to a fair in their village. Sohan has Rs. 200 and Rita has Rs. 250 . Sohan wanted to enjoy ride on the Giant wheel while Rita Played Hoopla. They enjoyed the ice-cream, fruits, burger etc and purchased some toys. They spent all of their money

If the product of two numbers is 1575 and HCF of these numbers is 5 . Find the LCM of two numbers

A. 415

B. 305

C. 315

D. 45

Answer:



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Ncert Corner Exercise 1 1

1. Use Euclid's division algorithm to find the HCF of :

135 and 225



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

:

196 and 38220



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3. Use Euclid's division algorithm to find the HCF of

:

867 and 255



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4. 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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5. 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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6. 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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7. Use Euclid's division Lemma to show that the cube of any positive integer is either of the form $9m$, $9m + 1$ or, $9m + 8$ for some integer m .



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Ncert Corner Exercise 1 2

1. Express each number as a product of its prime factors

140



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2. Express each number as a product of its prime factors

156



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3. Express each number as a product of its prime factors

3825



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4. Express each number as a product of its prime factors

5005



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5. Express each number as a product of its prime factors

7429



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6. Find the LCM and HCF of the following pair of integers and verify that $\text{LCM} \times \text{HCF} = \text{Product of the two numbers}$

26 and 91



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7. Find the LCM and HCF of the following pair of integers and verify that $\text{LCM} \times \text{HCF} = \text{Product of the two numbers}$

510 and 92



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8. Find the LCM and HCF of the following pair of integers and verify that $\text{LCM} \times \text{HCF} = \text{Product of the two numbers}$

336 and 54



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9. Find the LCM and HCF of the of the following integers by applying the prime factorisation method.

12, 15, and 21



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10. Find the LCM and HCF of the of the following integers by applying the prime factorisation method.

17, 23 and 29



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11. Find the LCM and HCF of the of the following integers by applying the prime factorisation method.

8, 9 and 25



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12. Given that $\text{HCF}(306, 657) = 9$, find $\text{LCM}(306, 657)$



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



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14. Explain why

$$7 \times 11 \times 13 + 13 \text{ and } 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1 + 5$$

are composite numbers



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15. 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 ?



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Ncert Corner Exercise 13

1. By using the method of contradiction verify that

P: $\sqrt{5}$ is irrational.



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



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3. $\frac{1}{\sqrt{2}}$ is



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4. Prove that the following irrationals ?

$$7\sqrt{5}$$



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5. Prove that the following irrationals ?

$$6 + \sqrt{2}$$



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6. Show that the square of any positive integer is either of the form $4q$ or $4q + 1$ form some integer q





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7. 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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8. Show that the square of any positive integer cannot be of the form $5m + 2$ or $5m + 3$ for some integer m .



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9. Show that the square of any positive integer cannot be of the form $6m+2$ or $6m+5$ for some integer q .

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

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



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12. Prove that if x and y are both odd positive integers then $x^2 + y^2$ is even but not divisible by 4



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13. Use Euclid division algorithm to find the HCF of 441, 567 and 693.



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14. 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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15. Prove that $\sqrt{3} + \sqrt{5}$ is an irrational number.



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



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17. 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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18. Write the denominator of the rational number $\frac{257}{5000}$ in the form $2^m \times 5^n$, where m, n and non-negative integers. Hence, write its decimal expansion without actual division.



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19. Prove that $\sqrt{p} + \sqrt{q}$ is an irrational, where p and q are primes.



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1. Without actually performing the long division, state whether the rational number will have a terminating decimal expansion or a non-terminating repeating decimal expansion

$$\frac{13}{3125}$$



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2. Without actually performing the long division, state whether the rational number will have a terminating decimal expansion or a non-terminating repeating decimal expansion

$$\frac{17}{8}$$



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3. Without actually performing the long division, state whether the rational number will have a terminating decimal expansion or a non-terminating repeating decimal expansion

$$\frac{64}{455}$$



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4. Without actually performing the long division, state whether the rational number will have a

terminating decimal expansion or a non -
terminating repeating decimal expansion

$$\frac{15}{1600}$$



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5. Without actually performing the long division,
state whether the rational number will have a
terminating decimal expansion or a non -
terminating repeating decimal expansion

$$\frac{29}{343}$$



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6. Without actually performing the long division, state whether the rational number will have a terminating decimal expansion or a non-terminating repeating decimal expansion

$$\frac{23}{2^3 5^2}$$



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7. Without actually performing the long division, state whether the rational number will have a terminating decimal expansion or a non-terminating repeating decimal expansion

$$\frac{129}{2^2 5^7 7^5}$$



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8. Without actually performing the long division, state whether the rational number will have a terminating decimal expansion or a non-terminating repeating decimal expansion

$$\frac{6}{15}$$



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9. Without actually performing the long division, state whether the rational number will have a terminating decimal expansion or a non-terminating repeating decimal expansion

terminating repeating decimal expansion

$$\frac{35}{50}$$



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10. Without actually performing the long division, state whether the rational number will have a terminating decimal expansion or a non - terminating repeating decimal expansion

$$\frac{77}{210}$$



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11. Write whether the square of any positive integer can be of the form $3m+2$, where m is a natural number. Justify answer.



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12. A positive integer is the form of $3q+1$ q , being a natural number. Can you write its square in any form other than $3m+1$ i.e. $3m$ or $3m+2$ for some integer? Justify your answer.



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13. The number 525 and 3000 are both divisible only 3,5,15,25,75. What is HCF (525, 3000)? Justify your answer.



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14. Explain why $3 \times 5 \times 7 \times + 7$ is a composite number



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15. Can two number have 18 as their HCF and 380 as their LCM? Give reason



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16. Without actually performing the long division, find if $\frac{987}{10500}$ will have terminating or non-terminating (repeating) decimal expansion. Give reasons for your answer



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17. 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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18. Show that the cube of a positive integer of the form $6q + r$, q is an integer and $r=0,1,2,3,4,5$ is also of the form $6m+r$



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



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



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22. Show that one and only one out of $n, n + 4, n + 8, n + 12$ and $n + 16$ is divisible by 5, where n is any positive integer.



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Board Corner Very Short Answer Questions

1. Write a rational number between $\sqrt{2}$ and $\sqrt{3}$



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2. Two positive integers a and b can be written as

$$a = x^3y^3 \text{ and } b = xy^3. x \text{ and } y \text{ are prime numbers}$$

. Find LCM (a,b)



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3. Given the HCF ($54,336$) = 6. Find LCM ($54,336$)



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4. What is the HCF of the smallest prime number and the smallest composite number?





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Board Corner Short Answer Questions

1. Find the HCF of 1260 and 7344 using Euclid's algorithm



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



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3. Write the smallest number which is divisible by both 306 and 657



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



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5. Prove that $\frac{2 + \sqrt{3}}{5}$ is an irrational number, given that $\sqrt{3}$ is an irrational number



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6. Prove that $2 + 5\sqrt{3}$ is an irrational number, given that $\sqrt{3}$ is an irrational number



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7. Using Euclid's Algorithm, find the HCF of 2048 and 960



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8. Given that $\sqrt{2}$ is irrational, prove that $(5 + 3\sqrt{2})$ is an irrational number



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



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Stand Alone Mcqs

1. $n^2 - 1$ is divisible by 8, if n is

- A. an integer
- B. a natural number
- C. an odd integer
- D. an even integer

Answer: C



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2. The largest number which divides 70 and 125, leaving remainder 5 and 8 respectively, is

A. 13

B. 65

C. 875

D. 1750

Answer: A



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3. If two positive intergers a and b are written as

$a = x^3y^2$ and $b = xy^3$, x, y are prime numbers

then HCF (a,b) is

A. xy

B. xy^2

C. x^3y^2

D. x^2y^2

Answer: B



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4. If two positive integers p and q can be expressed as $p = ab^2$ and $q = a^3b$, a, b being prime numbers, then LCM (p, q) is

A. ab

B. a^2b^2

C. a^3b^2

D. a^3b^3

Answer: C



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5. The least number that is divisible by all the numbers from 1 to 10 (both inclusive) is

A. 10

B. 100

C. 504

D. 2, 520

Answer: D



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6. 325 can be expressed as a product of its primes

as

A. $5^2 \times 7$

B. $5^2 \times 13$

C. 5×13^2

D. $2 \times 3^2 \times 5^2$

Answer: B



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7. Which of the following is the decimal expansion of an irrational number

A. 4.561

B. $0.\overline{12}$

C. 5.010010001

D. 6.03

Answer: C



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8. The decimal expansion of the rational number

$\frac{14587}{1250}$ will terminate after:

- A. one decimal place
- B. two decimal places
- C. three decimal places
- D. four decimal places

Answer: D



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9. The product of a non zero rational and an irrational number is

- A. always irrational
- B. always rational
- C. rational or irrational
- D. one

Answer: A



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10. After how many decimal places, expansion

$$\frac{23}{2^4 \times 5^3} \text{ will terminate?}$$

A. 2

B. 3

C. 4

D. 5

Answer: C



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11. $\sqrt{5} + \sqrt{2}$ is

- A. rational number
- B. prime number
- C. irrational number
- D. composite number

Answer: C



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12. What is the decimal fraction of $\frac{14}{5}$?

A. 2.88

B. 2.7

C. 2.81

D. 2.8

Answer: D



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13. What will be the simplest form of $\frac{\sqrt{45} + \sqrt{20}}{\sqrt{5}}$?

A. $5\sqrt{5}$

B. 5

C. $2\sqrt{5}$

D. $\sqrt{5}$

Answer: B



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Assertion And Reason Based Mcqs

1. Assertion (A): For any two positive numbers a and b , $HCF(a, b) \times LCM(a, b) = a \times b$.

Reason(R):The HCF of any two numbers is 5 and their products is 150. Then their LCM is 40.

A. Both A and R are true and R is the correct explanation for A .

B. Both A and R are true and R is not correct explanation for A.

C. A is true but R is false.

D. A is false but R is true.

Answer: C



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2. Assertion(A): The HCF of 131 and 201=1

Reason (R):The HCF of co prime numbers is 1.

- A. Both A and R are true and R is the correct explanation for A .
- B. Both A and R are true and R is not correct explanation for A.
- C. A is true but R is false.
- D. A is false but R is true.

Answer: A



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3. Assertion (A): For any natural number n , $(n)^2$ is of the form $2q$ or $2q + 2$.

Reason (R): Square of every odd number is odd.

A. Both A and R are true and R is the correct explanation for A .

B. Both A and R are true and R is not correct explanation for A.

C. A is true but R is false.

D. A is false but R is true.

Answer: D



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4. Assertion(A): \sqrt{a} is an irrational number, when a is a prime number.

Reason (R): Square root of any prime number is an irrational number.

A. Both A and R are true and R is the correct explanation for A.

B. Both A and R are true and R is not correct explanation for A.

C. A is true but R is false.

D. A is false but R is true.

Answer: A



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5. Assertion (A): The fraction value of $3.\overline{12} = \frac{309}{99}$,
so the makes $3.\overline{12}$ a rational number.

Reason(R): Non terminating and recurring decimals
are also irrational numbers

A. Both A and R are true and R is the correct
explanation for A .

B. Both A and R are true and R is not correct explanation for A.

C. A is true but R is false.

D. A is false but R is true.

Answer: C



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6. Assertion (A): 6^n ends with the digit zero where n is a natural number.

Reason (R): Any number ends with digit zero, if its

prime factor is of the form $2^m \times 5^n$, where m, n are natural numbers.

A. Both A and R are true and R is the correct explanation for A .

B. Both A and R are true and R is not correct explanation for A.

C. A is true but R is false.

D. A is false but R is true.

Answer: D



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7. Assertion (A): A number N when divided by 15 gives the remainder 2 Then the remainder is same when N is divided by 5.

Reason (R): $\sqrt{3}$ is an irrational number.

- A. Both A and R are true and R is the correct explanation for A .
- B. Both A and R are true and R is not correct explanation for A.
- C. A is true but R is false.
- D. A is false but R is true.

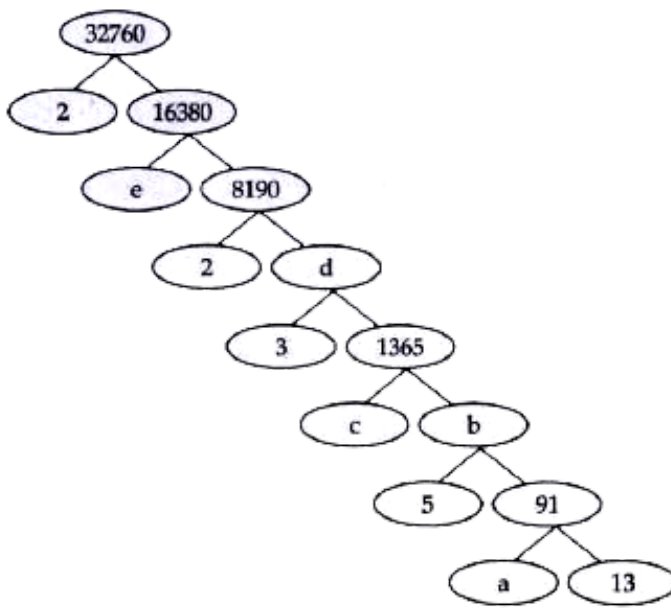
Answer: B



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Case Based Mcqs

1. Read of the following text and answer the following questions on the basis of the same:



Find the value of a

A. 7

B. 5

C. 2

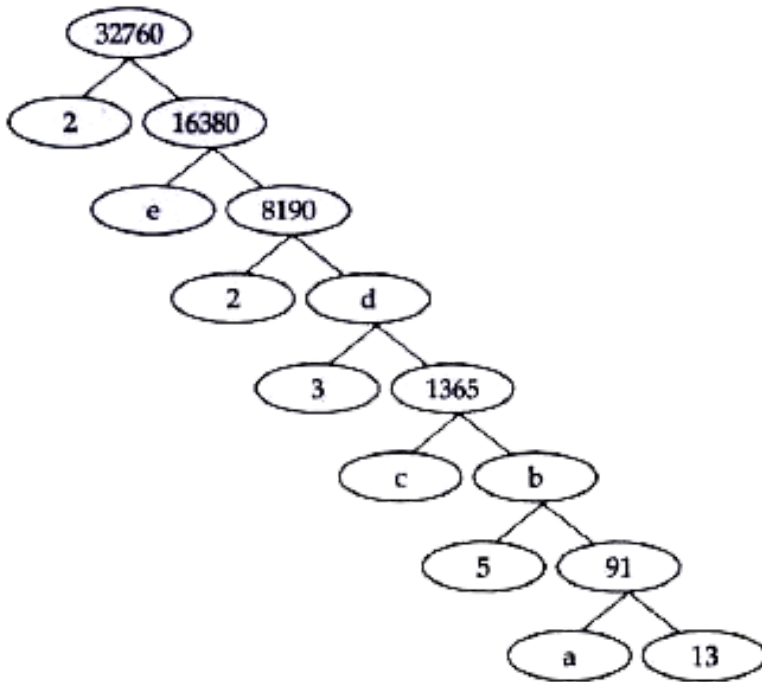
D. 3

Answer: A



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2. Read of the following text and answer the following questions on the basis of the same:



Find the value of b

A. 2

B. 455

C. 91

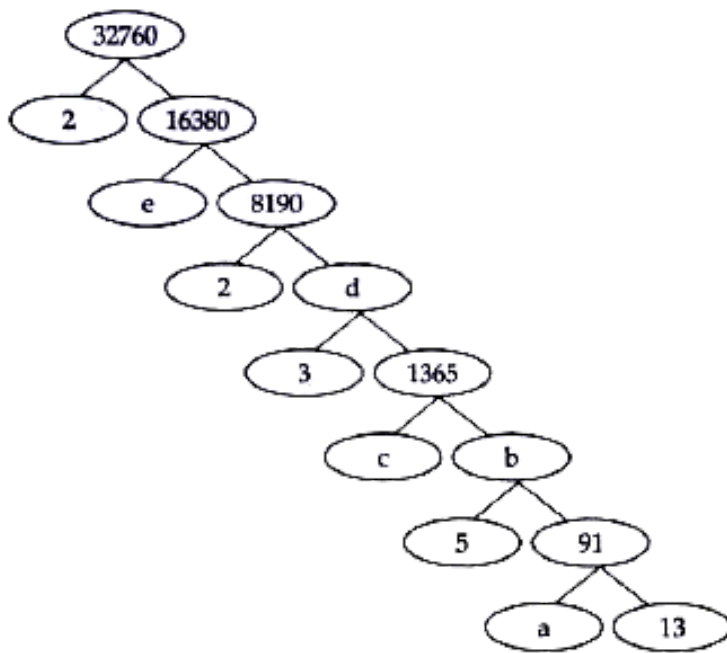
D. 1365

Answer: B



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3. Read of the following text and answer the following questions on the basis of the same:



Find the value of c

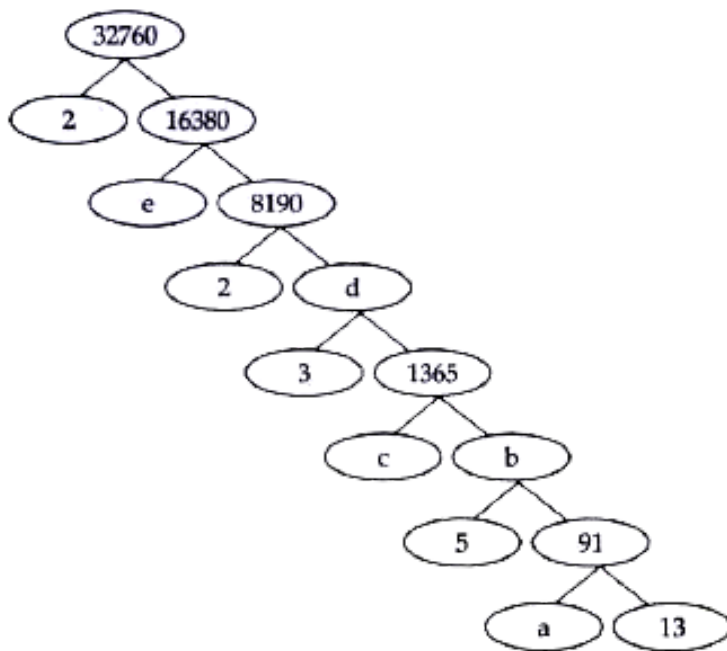
- A. 2
- B. 3
- C. 5
- D. 7

Answer: B



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4. Read of the following text and answer the following questions on the basis of the same:



Find the value of d

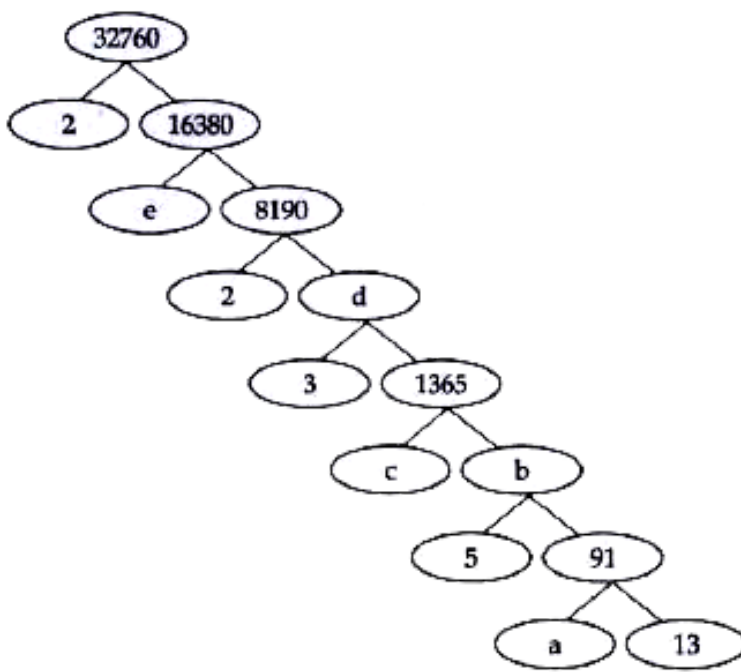
- A. 8190
- B. 1365
- C. 455
- D. 4095

Answer: D



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5. Read of the following text and answer the following questions on the basis of the same:



Find the value of e

A. 2

B. 3

C. 5

D. 7

Answer: A



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6. Read the following text and answer the following questions on the basis of the same:



Sohan and Rita are two friends. They went to a fair in their village. Sohan has Rs. 200 and Rita has Rs. 250. Sohan wanted to enjoy ride on the Giant Wheel while Rita played Hoopla. They enjoyed ice-cream, fruits, burger etc. and purchased some toys. They spent all their money.

Write the prime factor of Rs. 200

A. $2^3 \times 5^2$

B. $2^2 \times 5^3$

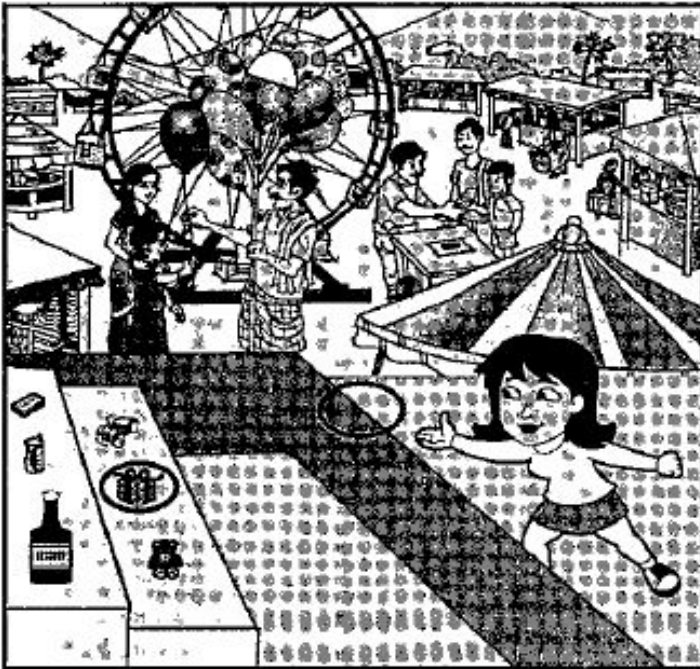
C. $2^2 \times 5^2$

D. 2×5^3

Answer: A



7. Read the following text and answer the following questions on the basis of the same:



Sohan and Rita are two friends. They went to a fair in their village. Sohan has Rs. 200 and Rita has Rs.

250. Sohan wanted to enjoy ride on the Giant Wheel while Rita played Hoopla. They enjoyed ice - cream, fruits, burger etc. and purchased some toys. They spent all their money.

Find the prime factor of Rs. 250

A. $2^0 \times 5^2$

B. $2^2 \times 5^3$

C. 2×5^2

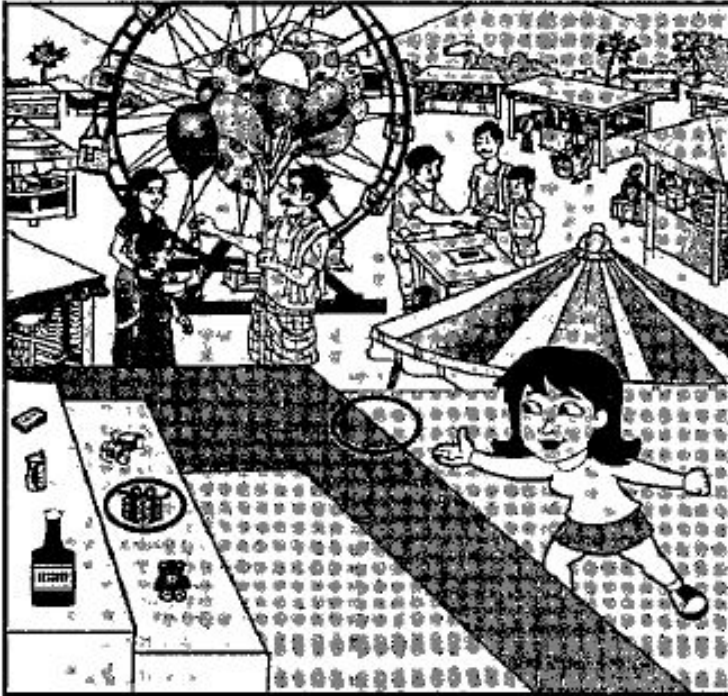
D. 2×5^3

Answer: D



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8. Read the following text and answer the following questions on the basis of the same:



Sohan and Rita are two friends. They went to a fair in their village. Sohan has Rs. 200 and Rita has Rs. 250. Sohan wanted to enjoy ride on the Giant Wheel while Rita played Hoopla. They enjoyed ice -

cream, fruits, burger etc. and purchased some toys.

They spent all their money.

Find the LCM of two numbers 200 and 250

A. 800

B. 500

C. 1000

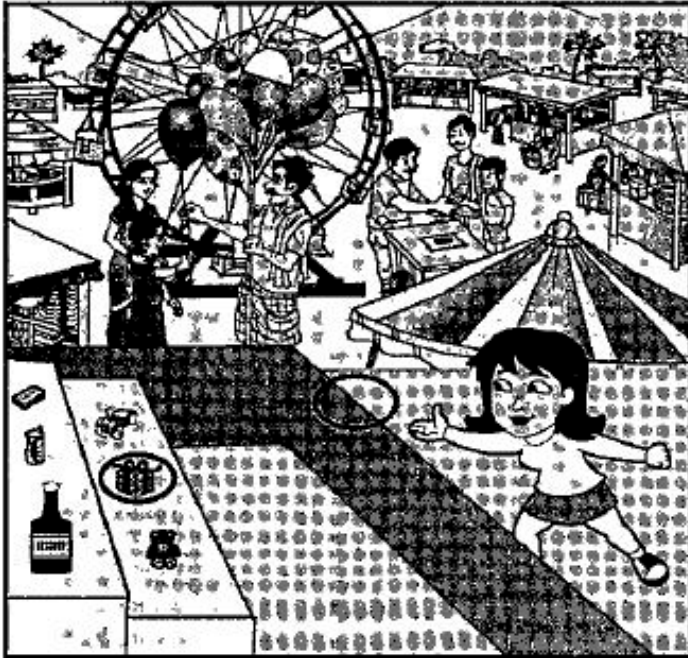
D. 200

Answer: C



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9. Read the following text and answer the following questions on the basis of the same:



Sohan and Rita are two friends. They went to a fair in their village. Sohan has Rs. 200 and Rita has Rs. 250. Sohan wanted to enjoy ride on the Giant Wheel while Rita played Hoopla. They enjoyed ice -

cream, fruits, burger etc. and purchased some toys.

They spent all their money.

Find the HCF of two numbers 200 and 250

A. 100

B. 50

C. 60

D. 40

Answer: B



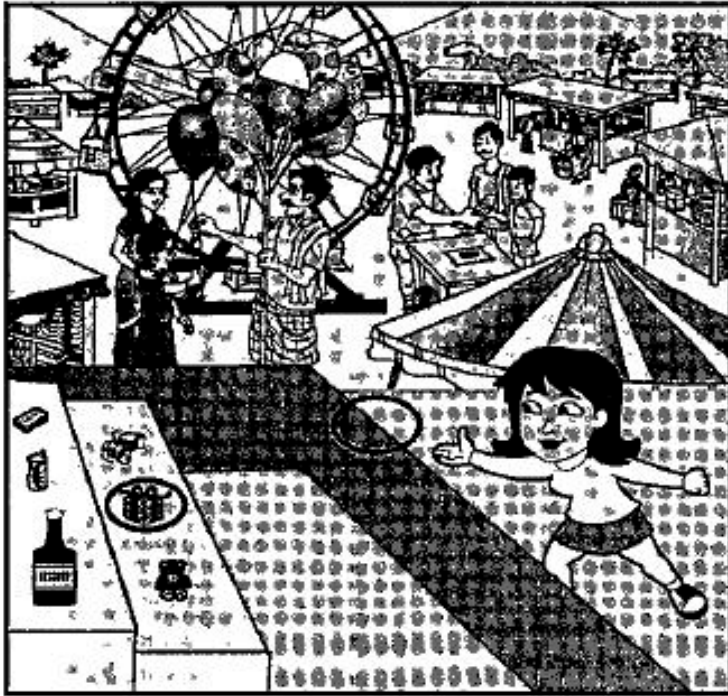
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10.

Sohan and Rita are two friends. They went to a fair in their village. Sohan has Rs. 200 and Rita has Rs. 250. Sohan wanted to enjoy ride on the Giant Wheel while Rita played Hoopla. They enjoyed ice-cream, fruits, burger etc. and purchased some toys. They spent all their money.

If the product of two number is 1575 and HCF of

these number is 5. Find the LCM of two numbers.



A. 415

B. 305

C. 315

D. 45

Answer: C



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11. To enhance the reading skills of grade X students, the school nominates you and two of your friends to set up a class library. There are two sections- section A and section B of grade X. There are 32 students in section A and 36 students in section B.



What is the minimum number of books you will acquire for the class library, so that they can be distributed equally among students of Section A or Section B?

A. 144

B. 128

C. 288

D. 272

Answer: C



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12. To enhance the reading skills of grade X students, the school nominates you and two of your friends to set up a class library. There are two sections- section A and section B of grade X. There are 32 students in section A and 36 students in section B.



If the product of two positive integers is equal to the product of their HCF and LCM is true then, the HCF (32 , 36) is

A. 2

B. 4

C. 6

D. 8

Answer: B



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13. To enhance the reading skills of grade X students, the school nominates you and two of your friends to set up a class library. There are two sections- section A and section B of grade X. There are 32 students in section A and 36 students in section B.



36 can be expressed as a product of its primes as

A. $2^2 \times 3^2$

B. 2×3

C. $2^3 \times 3$

D. $2 \times 3 \times 5$

Answer: A



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14. To enhance the reading skills of grade X students, the school nominates you and two of your friends to set up a class library. There are two sections- section A and section B of grade X. There are 32 students in section A and 36 students in section B.



$7 \times 11 \times 13 \times 15 + 15$ is a

- A. Prime number
- B. composite number
- C. negative integer
- D. none of the above

Answer: B



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15. To enhance the reading skills of grade X students, the school nominates you and two of your friends to set up a class library. There are two sections- section A and section B of grade X. There

are 32 students in section A and 36 students in section B.



If p and q are positive integers such that $p = ab^2$ and $q = a^2b$, where a , b are prime numbers, then the LCM (p, q) is

A. ab

B. a^3b^2

C. a^2b^2

D. a^3b^3

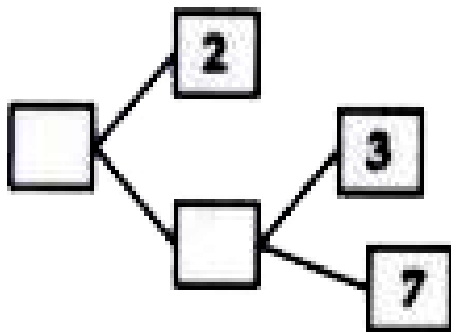
Answer: C



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Multiple Choice Questions

1. Complete the missing entries in the following factor tree:



A. 42 and 21

B. 24 and 12

C. 7 and 3

D. 84 and 42

Answer: A



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2. The sum of exponents of prime factors in the prime-factorisation of 196 is:

A. 3

B. 4

C. 5

D. 2

Answer: B



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3. The total number of factors of a prime number is:

A. 1

B. 0

C. 2

D. 3

Answer: C



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4. The H.C.F. and the L.C.M. of 12, 21, 15 respectively

A. 3, 140

B. 12, 420

C. 3, 420

D. 420, 3

Answer: C



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5. H.C.F. of 2 numbers is 113, and their L.C.M. is 56952. If one number is 904, then the other number is:

A. 7911

B. 7119

C. 7791

D. 7971

Answer: B



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6. For what least value of n natural number $(24)^n$ is divisible by 8 ?

A. 1

B. -1

C. 0

D. none of these

Answer: A



View Text Solution

7. The H.C.F. of 306 and 1314 is:

A. 15

B. 16

C. 17

D. 18

Answer: D



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8. The H.C.F. $(a, b) = 2$ and L.C.M. $(a, b) = 27$. What is the value $a \times b$?

A. 44

B. 54

C. 56

D. 68

Answer: B



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9. The H.C.F. of $3^3 \times 5$ and $3^2 \times 5^2$ is:

A. 135

B. 15

C. 225

D. 45

Answer: D



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10. If the H.C.F. of two numbers is 1, then the two numbers are called:

- A. composite
- B. twin primes
- C. co-primes
- D. none of these

Answer: C



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11. π is:

- A. an integer
- B. an irrational number
- C. a rational number
- D. none of the above

Answer: B



View Text Solution

12. Which of the following is the smallest composite number?

- A. 3

B. 4

C. 2

D. 1

Answer: B



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13. The H.C.F. of smallest prime number and the smallest composite number is

A. 1

B. 2

C. 4

D. none of these

Answer: B



View Text Solution

14. For some integer m , every even integer is of the form:

A. n

B. $m + 1$

C. $2m$

D. $2m + 1$

Answer: C



View Text Solution

15. $n^2 - 1$ is divisible by 8, if n is:

- A. an integer
- B. a natural number
- C. an odd integer
- D. an even integer

Answer: C



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16. The largest number which divides 70 and 125, leaving remainders 5 and 8, respectively, is:

- A. 13
- B. 65
- C. 875
- D. 1750

Answer: A



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Very Short Answer Type Questions

1. Express 23150 as product of its prime factors. Is it unique?



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2. Find the largest number which divides 70 and 125 leaving remainder 5 and 8 respectively.



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3. If H.C.F. (336, 54) = 6, find L.C.M. (336, 54).



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4. Write whether $\frac{2\sqrt{45} + 3\sqrt{20}}{2\sqrt{5}}$ on simplification gives a rational or an irrational number.



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5. 96 defective pens are accidentally mixed with 105 good pens. What is L.C.M. of 96 and 105 ?





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6. Atul, Ravi and Tarun go for a morning walk. They 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?



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7. There is a circular path around a sports field, Priya takes 18 min. to drive one round of the field, while Ravish takes 12 min. 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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8. Find a rational number between $\sqrt{2}$ and $\sqrt{3}$.



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9. 50 people work in a cooperative society All of them use their own conveyance for travelling. 20

people use their scooters, 12 go by their cars, 16 go by public transport and 2 use bicycle.

Find H.C.F. of 20, 16, 12 and 2.



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10. Two positive integers a and b can be written as

$a = x^3y^2$ and $b = xy^3$. x, y are prime numbers.

Find L.C.M. (a, b).



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Short Answer Type Questions

1. Find the H.C.F. of 1260 and 7344 using Euclid's algorithm.



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2. The length, breadth and height of a room are 8 m 50 cm, 6 m 25 cm and 4 m 75 cm respectively. Find the length of the longest rod that can measure the dimensions of the room exactly.



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3. A class of 20 boys and 15 girls is divided into n groups so that each group has x boys and y girls.

Find x , y and n .



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4. The L.C.M. of two numbers is 14 times their H.C.F. The sum of L.C.M. and H.C.F. is 750. If one number is 250, then find the other number.



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5. Write the smallest number which is divisible by both 306 and 657.



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6. In a seminar on the topic 'liberty and equality' the numbers of participants from Hindi, Social Science and English department 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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7. Three sets of English, Hindi and Sociology books dealing with cleanliness have to be stacked in such a way that all the books are stored topic-wise and the height of each stack is the same. The number of English books is 96, number of Hindi books is 240 and the number of Sociology books is 336. Assuming that the books are of the same thickness, determine the number of stacks of English, Hindi and Sociology books.

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8. Three alarm clocks ring at intervals of 4, 12 and 20 minutes respectively. If they start ringing together, after how much time will they next ring together?



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9. Find L.C.M. and H.C.F. of 3930 and 1800 by prime factorization method.



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Long Answer Type Questions

1. Find H.C.F. of numbers 134791, 6341 and 6339 by Euclid's division algorithm.



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Assertion And Reasoning Based Questions

1. Assertion: $\frac{123}{6250}$ is a terminating decimal.

Reason: The rational number $\frac{p}{q}$ is a terminating decimal, if $q = (2^m \times 5^n)$ for some whole numbers m and n .

- A. Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.
- B. The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.
- C. Assertion is true but the Reason is false.
- D. Assertion is false but the Reason is true.

Answer: A



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2. Assertion: - 1, 0, 2, $\frac{-4}{3}$ all are example of rational numbers.

Reason: All integers and fractions are rational numbers.

A. Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.

B. The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.

C. Assertion is true but the Reason is false.

D. Assertion is false but the Reason is true.

Answer: A



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Case Based Questions

1. The department of Computer Science and Technology is conducting an International seminar. In the seminar, the number of participants in Mathematics, Science and computer Science are 60, 84 and 108 respectively. The coordinator has made

the arrangement such that in each room, the same number of participants are to be seated and all of them being is of the same subject. Also they allotted the separate room for all the official other than participants.



The total number of participants is:

A. 60

B. 84

C. 108

D. 252

Answer: D



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2. The department of Computer Science and Technology is conducting an International seminar. In the seminar, the number of participants in Mathematics, Science and computer Science are 60, 84 and 108 respectively. The coordinator has made the arrangement such that in each room, the same

number of participants are to be seated and all of them being is of the same subject. Also they allotted the separate room for all the official other than participants.



The L.C.M. of 60, 84 and 108 is:

- A. 12
- B. 504
- C. 544320

D. 3780

Answer: D



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3. The department of Computer Science and Technology is conducting an International seminar. In the seminar, the number of participants in Mathematics, Science and computer Science are 60, 84 and 108 respectively. The coordinator has made the arrangement such that in each room, the same number of participants are to be seated and all of them being is of the same subject. Also they

allotted the separate room for all the official other than participants.



The H.C.F. of 60, 84 and 108 is:

- A. 12
- B. 60
- C. 84
- D. 108

Answer: A



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4. The department of Computer Science and Technology is conducting an International seminar. In the seminar, the number of participants in Mathematics, Science and computer Science are 60, 84 and 108 respectively. The coordinator has made the arrangement such that in each room, the same number of participants are to be seated and all of them being is of the same subject. Also they allotted the separate room for all the official other

than participants.



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 is:

- A. 12
- B. 20
- C. 21

D. None of these

Answer: C



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5. The department of Computer Science and Technology is conducting an International seminar. In the seminar, the number of participants in Mathematics, Science and computer Science are 60, 84 and 108 respectively. The coordinator has made the arrangement such that in each room, the same number of participants are to be seated and all of them being is of the same subject. Also they

allotted the separate room for all the official other than participants.



Based on the above (iv) conditions, the minimum number of room required for all the participants and officials is:

- A. 12
- B. 21
- C. 22

D. None of these

Answer: C



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6. Vedika wants to organize her birthday party. She was happy on her birthday. She is very health conscious. So decided to serve fruits only to the guests. She has 36 apples, 60 bananas at home and decided to serve them. She want to distribute the fruits among guests. She does not want to discriminate among guests so she decided to

distribute the fruits equally among all.

How many maximum guests Vedika can invite?

- A. 12
- B. 120
- C. 6
- D. 180

Answer: A



View Text Solution

7. Vedika wants to organize her birthday party. She was happy on her birthday. She is very health conscious. So decided to serve fruits only to the guests. She has 36 apples, 60 bananas at home and decided to serve them. She want to distribute the fruits among guests. She does not want to discriminate among guests so she decided to distribute the fruits equally among all.

How many apples and bananas will each guests get?

A. 3 apples 5 bananas

B. 5 apples 3 bananas

C. 2 apples 4 bananas

D. 4 apples 2 bananas

Answer: A



View Text Solution

8. Vedika wants to organize her birthday party. She was happy on her birthday. She is very health conscious. So decided to serve fruits only to the guests. She has 36 apples, 60 bananas at home and decided to serve them. She want to distribute the fruits among guests. She does not want to

discriminate among guests so she decided to distribute the fruits equally among all.

Vedika decide to add 42 mangoes. In this case how many maximum guests Vedika invite?

- A. 12
- B. 120
- C. 6
- D. 180

Answer: C



View Text Solution

9. Vedika wants to organize her birthday party. She was happy on her birthday. She is very health conscious. So decided to serve fruits only to the guests. She has 36 apples, 60 bananas at home and decided to serve them. She want to distribute the fruits among guests. She does not want to discriminate among guests so she decided to distribute the fruits equally among all.

If Vedika decide to add 3 more mangoes and instead 6 apples, in this case how many maximum guests Vedika can invite?

A. 12

B. 30

C. 15

D. 24

Answer: C



View Text Solution

10. Vedika wants to organize her birthday party. She was happy on her birthday. She is very health conscious. So decided to serve fruits only to the guests. She has 36 apples, 60 bananas at home and decided to serve them. She want to distribute the fruits among guests. She does not want to

discriminate among guests so she decided to distribute the fruits equally among all.

How many total fruits will each guest get from case (iii)?

A. 36

B. 60

C. 17

D. 23

Answer: D



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Passage Based Questions

1. Suresh planned a renovation of his house. He want to renovate ceiling of his room by putting square shape tiles on it. Ceiling of the room is 8 m 25 cm long and 6m 75 cm broad.

Find the dimensions of each tiles.



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2. Suresh planned a renovation of his house. He want to renovate ceiling of his room by putting square shape tiles on it. Ceiling of the room is 8 m

25 cm long and 6m 75 cm broad.

Find the number of tiles required for the project.



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3. Sandhya on the very first day of her job in a bank, noticed that there are six bells which keep on tolling at regular intervals. She noticed that toll of their intervals are 2, 4, 6, 8, 10, 12 minutes respectively. If all the six bells commence tolling together, at 19 a.m., then answer the following questions.

Based on the given information, answer the

following questions:

At what time will they again toll together?



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4. Sandhya on the very first day of her job in a bank, noticed that there are six bells which keep on tolling at regular intervals. She noticed that toll of their intervals are 2, 4, 6, 8, 10, 12 minutes respectively. If all the six bells commence tolling together, at 19 a.m., then answer the following questions.

Based on the given information, answer the following questions:

How many times these bells will toll together during the working hours of Sandhya's job, if Sandhya works for 8 hours in a day?



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Self Assessment

1. Find the H.C.F. of $x^2 + 3x - 10$ and $x^3 - 8x$.



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2. Three iron rods of length 24 m, 94 m, 36 m have to be cut into poles of the same length. What is the greatest length possible?



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3. The traffic lights at three different crossing change after 36 s, 60 s and 96 s. If at 9 pm they changed together then when will they change together again?



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4. A dealer has 60 l of blue paint, 84 l of, violet paint and 132 l of white paint. What would be the capacity of the cans that he would use to store all the three types of paint in equal quantities? How many such cans will there be ?



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5. In a class, there are 16 boys and 18 girls. Find the number of pens required to distribute them equally among the boys and the girls.



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6. Find the H.C.F. of

$$2(x^3 - 4x^2 + 4x), 6(x^2 + x - 6) \text{ and } 8(x^3 - 8)$$



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7. Find the L.C.M. of

$$3a^2 - 5ab - 12b^2, a^5 - 27a^2b^3 \text{ and } 9a^2 + 24ab + 16b^2$$



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8. Find the H.C.F. of

$$8(x^2 - 4), 12(x^3 + 8) \text{ and } 36(x^2 - 3x - 10)$$



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9. Find the L.C.M. of
 $(a^2 + 2a)^2$, $2a^3 - 2a + 3a^2$ and $2a^4 - 3a^3 - 14a^2$



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10. Find the H.C.F. of
 $x^4 - 2x^2 + 1$ and $x^4 - 2x^3 + 2x - 1$



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11. Find the H.C.F. of

$$4(x^2 - 7x + 12), 8(x^2 - 9) \text{ and } 12(x^2 - 6x + 9).$$



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