REAL NUMBER

H.C.F & L.C.M

1. The HCF of smallest 2–digit number and the smallest composite number is:
2. A school has invited 42 Mathematics teachers, 56 Physics teachers and 70 Chemistry teachers to attend a Science workshop. Find the minimum number of tables required, if the same number of teachers are to sit at a table and each table is occupied by teachers of the same subject (errors-eraser)
3. Find the greatest number which divides 65 and 117 completely.
4. The LCM of the smallest odd prime number and greatest 2-digit number, is
5. Two alarm clocks ring their bell at regular interval of 20 minutes and 25 min respectively. If they first beep at 12 noon,at what time will they beep again together next time? (errors-eraser)
6. There is a circular path around a sports field. Three cyclists start from the same point and at the same time and go in the same direction. If they take 30 minutes, 40 minutes and 48 minutes respectively to complete one round of the field, after how many minutes will they meet again at the starting point ?
7. Find the greatest number which divides 85 and 72 leaving remainders 1 and 2 respectively (errors-eraser)
8. Find the least number which when divide by 12,16 and 24 leaves a remainder of 7 at each case
9. Three bells ring at intervals of 6, 12 and 18 minutes. If all the three bells rang at 6 a.m., when will they ring together again ?
10. The traffic lights at three different road crossings change after every 48 seconds, 72 seconds and 108 seconds respectively. If they change simultaneously at 7 a.m., at what time will they change together next ?
11. In a school, there are two sections of class X. There are 40 students in the first section and 48 students in the second section. Determine the minimum number of books required for their class library so that they can be distributed equally among students of both sections. (errors-eraser)
12. In a teachers workshop , the number of teacher teaching french,hindi and english are 48,80 and 144 respectively.find the minimum numbers of room required if in each room the same number of teacher are seated and all of them are of same subject.
13. Find the smallest number that is divisible by each of 8, 9 and 10.
14. Find the greatest 3-digit number which is divisible by 18, 24 and 36.
15. Find the smallest 4-digit number exactly divisible by 15,24 and 36.

(errors-eraser)

PRIME FACTORISATION

1. The exponent of 3 in the prime factorisation of 243 is :
2. Prime factorisation of 424 is :
3. If $2800 = 2^x * 5^y * 7$, then the value of $(x + y)$ is:
4. If $1080 = 2^x * 3^y * 5$, then $(x – y)$ is equal to :

5. If $3825 = 3^x * 5^y * 17^z$, then the value of $x + y - 2z$ is : (errors-eraser)

L.C.M & H.C.F BY PRIME FACTORISATION

1. If $a = 2^7 .3^{10}$ and $b = 2^3 .3^7$, then HCF (a, b) is :
   (A) $2^7 .3^{10}$ (B) $2^{10} .3^{17}$
   (C) $2^3 .3^7$ (D) $2^7 .3^7$
2. Using prime factorization, find the HCF and LCM of 6, 72 and 120. (errors-eraser)
3. HCF*LCM for the numbers 40 and 30 is :
4. Given that HCF (306, 1314) = 18, find LCM of (306, 1314)
5. Find the HCF of 45, 54, 270 using prime factorization method.
6. Find the HCF and LCM of 260 and 910 by prime-factorisation method.
7. Find the LCM of 231 and 396 by prime factorisation method.
8. Find the HCF of 84 and 144 by prime factorisation method.
9. LCM of (850,500) is
   (a)$850*50$ (B)$17*500$ (c)$17*5^2*2^2$ (d)$17*2*5^3$ (errors-eraser)
10. Find LCM and HCF of 96 and 160, using prime factorisation method.
11. If A and B are two consecutive natural numbers,then HCF (A,B) is
12. If the HCF of 360 and 64 is 8, then their LCM is :
13. If the HCF of 72 and 234 is 18, then the LCM (72, 234) is :
14. (HCF × LCM) for the numbers 70 and 40 is :
15. LCM of $(2^3 *5*3)$ and $(2^4 *5* 7)$ is :
16. HCF of $(3^4 *2^2 *7^3)$ and $(3^2* 5* 7)$ is :
17. If two positive integers x and y are written as $x = a^3b^2$ and $y=ab^3$, where a and b are prime numbers, then their HCF (x, y) is : (errors-eraser)
18. If $a = 2^4*3^3$, $b = 2^3*3^2*5$, $c = 3^n*5^2$ and LCM (a, b, c) = $(5^2*3^4*2^4)$, then n is :
19. If the product of two co-prime numbers is 553, then their HCF is :
20. If $a=2^2*3^x$,$b=2^2*3*5$,$c=2^2*3*7$ andLCM(a,b,c)=3780,then x is equal to:
21. The HCF of two numbers 65 and 104 is 13. If LCM of 65 and 104 is 40x, then the value of x is :
22. If two integers p and q expressed as $p=18a^2b^4$ and $q= 20a^3b^2$,where a and b are prime number ,then LCM of p and q is
23. If theHCF(2520,6600)=40andLCM(2520,6600)=252*k, thenthe value of k is
24. The ratio of HCF to LCM of the least composite number and the least prime number is :
(a) 1:2 (b) 2:1 (c) 1:1 (d) 1:3 (errors-eraser)
25. Two numbers are in the ratio 2 : 3 and their LCM is 180. What is the HCF of these numbers ?
26. If P and Q are natural umber and P is the multiple of Q ,then what is the HCF of P and Q

DIVISIBILITY WITH END DIGIT

1. Show that 8^n can never end with the digit 0 for any natural number n.
2. If x is a whole number, then 8^x ends with an even digit, except for which value of x ?
3. If n is any natural number, then which of the following numbers ends with digit 0 ?
   (A) $(3 \times 2)^n$ (B) $(5 \times 2)^n$ (C) $(6 \times 2)^n$ (D) $(4 \times 2)^n$
4. Show that $(15)^n$ cannot end with the digit 0 for any natural number n

ERRORS ERASER

5. Can the number$(15)^n$,n being a natural number, end with the digit 0? Give reasons.
6. If n is a natural number,then which of the following numbers end with 0
   (a)$(3*2)^n$ (b) $(2*5)^n$ (c) $(6*2)^n$ (d) $(5*3)^n$

(errors-eraser)

7. Prove that 4^n can never end with digit 0, where n is a natural number.

CHECKING IRRATIONALITY AND PRIME NUMBER

1. Explain why (7 * 11 * 13 + 2 * 11) is not a prime number.
2. Which of the following is an irrational number ?
(a)$(2\sqrt{3}-1/\sqrt{3})^2$ (b)$(\sqrt{2} - 1)^2$ (c)$\sqrt{2}- (2+\sqrt{2})$(d)$(\sqrt{2}+5\sqrt{2})/\sqrt{2}$
3. The number $(5 - 3\sqrt{5}+ \sqrt{5})$ is :

(errors-eraser)

(a) an integer (b) a rational number (c) an irrational number (d) a whole number
4. The product of a non-zero rational number and an irrational number is : (a) always irrational (b) always rational (c) rational or irrational (d) always positive
5. A pair of irrational numbers whose product is a rational number is: (A) ($\sqrt{16}$, $\sqrt{4}$) (B) ($\sqrt{5}$, $\sqrt{2}$) (C) ($\sqrt{3}$, $\sqrt{27}$) (D) ($\sqrt{36}$, $\sqrt{2}$)

(errors-eraser)

6. The smallest irrational number by which $\sqrt{20}$ should be multiplied so as to get a rational number,is: (A) $\sqrt{20}$ (B) $\sqrt{2}$ (C) $\sqrt{5}$ (D) 5
7. Find whether each of the following is an irrational number or a rational number. (I) $(\sqrt{5} - \sqrt{3})^2$ (II) $(5+\sqrt{3})(5-\sqrt{3})$

IRRATIONALITY

(errors-eraser)

1.Prove that $(3 + 2\sqrt{5})$ is an irrational number, given that $\sqrt{5}$ is an irrational number.
2. Prove that $\sqrt{5}$ is an irrational number.
3.Prove that $2+5\sqrt{3}$ is an irrational number, if it is given that $\sqrt{3}$ is an irrational number.
4.$\sqrt{2}(5 - \sqrt{2})$ is an irrational number.
5.Prove that $-7-2\sqrt{3}$ is an irrational number,given that $\sqrt{3}$ is an irrational number.
6.prove that $5\sqrt{2}-3$ is an irrational number , if it is given that$\sqrt{2}$ is an irrational number.
7.Prove that $(2-\sqrt{3})/5$ is an irrational number, given that$\sqrt{3}$ is an irrational number
8.Prove that ($\sqrt{2} + \sqrt{3}$)is an irrational number, given that $\sqrt{6}$ is an irrational number.
9.Prove that $5-\sqrt{3}$ is an irrational number,given that $\sqrt{3}$ is an irrational number.

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