

- 1) The LCM of two numbers is 192 and their product is 3072. Find their HCF
- 2) After how many places of decimal, the decimal expansion of $43/2^4 \times 5^3$ will terminate?
- 3) What is the H.C.F. of smallest prime number and the smallest composite number ?
- 4) Explain why $(17 \times 11 \times 2 + 17 \times 11 \times 5)$ is a composite number?
- 5) Find the LCM and HCF of 1296 and 5040 by prime factorisation method:
- 6) Check whether 14^n can end with the digit zero for any natural number n ?
- 7) Prove that $\sqrt{2}$ is an irrational number.
- 8) Find the greatest number that will divide 43,91 and 183 so as to leave the same remainder in each case.
- 9) The set of Mathematics, Physics and Physical Education books have to be stacked in such a way that all the books are stored topic wise. The number of Mathematics, Physics and Physical Education books are 14, 18 and 22. Determine the number of stacks of each books provided books are of the same thickness.
- 10) Three bells toll at intervals of 9, 12, 15 minutes respectively. If they start tolling together, after what time will they next toll together?
- 11) The coefficient of x and the constant term in a linear polynomial are 5 and -3 respectively, find its zero.
- 12) If α and β are zeroes of the polynomial $2x^2 - 5x + 7$, then find the value of $\alpha^{-1} + \beta^{-1}$
- 13) If α and β are the zeroes of a quadratic polynomial $x^2 - x - 2$ then find the value of $(1/\alpha - 1/\beta)$.
- 14) Find the zeroes of the quadratic polynomial $5x^2 - 4 - 8x$ and verify the relationship between the zeroes and the coefficients of the polynomial.
- 15) If $51x + 23y = 116$ and $23x + 51y = 106$, then find the value of $(x - y)$.
- 16) Find out whether the following pair of equation is consistent or in-consistant.
 $3x + 2y = 5$; $2x - 3y = 7$
- 17) A fraction becomes $1/3$ when 1 is subtracted from the numerator and it becomes $1/4$ when 8 is added to its denominator. Find the fraction.
- 18) A number consists of two digits. When it is divided by the sum of the digits, the quotient is 6 with no remainder. When the number is diminished by 9, the digit are reversed.
- 19) Draw the graph of $2x + y = 6$ and $2x - y + 2 = 0$. Shade the region bounded by these lines and x-axis. Find the area of the shaded region.
- 20) A man travel 370 km partly by train and partly by car. If he covers 250 km by train and the rest by car, it takes him 4 hours. But, if he travels 130 km by train and the rest by car, he takes 18 minutes longer. Find the speed of the train and that of the car.
- 21) Students of a class are made to stand in rows. If one student is extra in a row, there would be 2 rows less. If one student is less in a row there would be 3 rows more. Find the number of students in the class.
- 22) If $7x^2 - (2p^2 - 8)x + 16 = 0$ has two roots which are equal in magnitude but opposite in sign then find p .
- 23) Solve: $1/a + b + x = 1/a + 1/b + 1/x$
- 24) A plane left 30 minutes late than its scheduled time and in order to reach the destination 1500 km away in time, it had to increase its speed by 100 km/h from the usual speed. Find its usual speed.
- 25) Find the value of p for which the quadratic equation $(2p + 1)x^2 - (7p + 2)x + (7p - 3) = 0$ has equal roots. Also find these roots.
- 26) Speed of a boat in still water is 15 kn\h. It goes 30 km upstream and returns back at the same point in 4 hours 30 minutes. Find the speed of the stream
- 27) Solve $\sqrt{5} + \sqrt{5} + \sqrt{5} + \dots$
- 28) The hypotenuse of a right triangle is 1 m less than twice the shortest side. If the third side is 1 m more than the shortest side, find the sides of the triangle.
- 29) If the equation $(1 + m^2)x^2 + 2mcx + c^2 - a^2 = 0$ has equal roots, show that $c^2 = a^2(1 + m^2)$.
- 30) Find the roots of the quadratic equation
 $\sqrt{2}x^2 + 7x + 5\sqrt{2} = 0$