

1. If $\text{HCF}(26,169) = 13$, find the $\text{LCM}(26,169)$.
2. If a and b are co-prime numbers, then find the $\text{HCF}(a,b)$.
3. Express 156 and 126 as the product of primes
4. Prove that $3 + 2\sqrt{5}$ is irrational, if we given that $\sqrt{5}$ is irrational.
5. If two positive integers p and q can be expressed $p = ab^2$ and $q = a^3b$; a, b being prime numbers, then $\text{LCM}(p, q)$.
6. Show that 12^n cannot end with digit 0 or 5 for any natural number n .
7. Prove that $\sqrt{2}$ and $\sqrt{5}$ is irrational.
8. If $\text{HCF}(26,169) = 13$, find the $\text{LCM}(26,169)$
9. Find a quadratic polynomial, the sum and product of whose zeroes are $-1/4$ and $1/4$.
10. If α and β are the zeroes of the polynomial $x^2 - 5x + k$, such that $\alpha - \beta = 1$. Find k .
11. If α and β are the zeroes of the polynomial $2x^2 - 5x + 7$, find polynomial whose zeroes are $2\alpha + 3$ and $2\beta + 3$
12. If α and β are the zeroes of the polynomial $x^2 - 4x + k$, show that $\alpha + \beta - 2\alpha\beta = 4$. find the value of k .
13. Find the zeroes of the polynomial $x^2 + 7x + 10$ and verify the relationship between the zeroes and the coefficients.
14. If α and β are the zeroes of the polynomial $3x^2 + 7x + 5$, find a polynomial whose zeroes are 3α and 3β .
15. Find the zeroes of the polynomial $6x^2 - 3 - 7x$ and verify the relationship between the zeroes and the coefficients.
16. If α and β are the zeros of quadratic polynomial $p(x) = x^2 - x - 4$, find the value of $(\alpha + \beta)^2 - 2\alpha\beta$
17. Find the quadratic polynomial, the sum of whose zeroes is 0 and one zero is 4.
18. If α and β are the zeroes of the polynomial $2x^2 - 13x + 6$, then $\alpha + \beta$
19. if $x = -1/2$ is a solution of the quadratic equation $3x^2 + 2kx - 3 = 0$, find the value of k .
20. if the quadratic equation $px^2 - 2\sqrt{5}px + 15 = 0$ has two equal roots, then find the value of P .
21. which of the following is not quadratic equation?
(i) $x(2x+3) = x^2 + 1$ (ii) $(x+2)^3 = x^3 - 4$ (iii) $(x+2)^2 = x^2$
22. Find the discriminant of the Quadratic equation $2x^2 - 4x + 3 = 0$ and hence find the nature of its roots.
23. find the roots of the quadratic equation $x^2 + 5x - 14 = 0$
24. solve for x : $\sqrt{2x+9} + x = 13$ by factorisation
25. solve for x : $4x^2 + 4bx - (a^2 - b^2) = 0$ by quadratic formula
26. solve for x : $\sqrt{3}x^2 - 2\sqrt{2}x - 2\sqrt{3} = 0$ by quadratic formula
27. find the value of k for which the equation $2x^2 - (k-1)x + 8 = 0$ will have real and equal roots.
28. if the roots of the equation $(a-b)x^2 + (b-c)x + (c-a) = 0$ are equal, prove that $2a = b + c$ find the positive values of k which
29. equations $x^2 + kx + 64 = 0$ and $x^2 - 8x + k = 0$ both will have real roots.
30. The angle of the elevation of the top of a tower from the point of a ground which is 30 m away from the foot of a tower, is 30° . Find the height of the tower.
31. A statue 1.6 m tall stands on the top of a pedestal. From a point on the ground, the angle of the elevation on the top of the statue is 60° and the same point the angle of elevation of the top of the pedestal is 45° . Find the height of the pedestal.
32. As observed from the top of a 75 m tall lighthouse, the angle of depression of two ships are 30° and 45° . If one ship is exactly behind the other on the same side of the lighthouse, find the distance between the two ships
33. From a point on a bridge across a river, the angles of depression of the banks on opposite sides of the river are 30° and 45° , respectively. If the bridge is at a height of 3 m from the banks, find the width of the river.
34. The shadow of a tower standing on a level ground is found to be 40 m longer when the Sun's altitude is 30° than when it is 60° . Find the height of the tower.
35. At a point A, 20 m above the level of water in a lake, the angle of the elevation of a cloud is 30° . The angle of depression of the reflection of the cloud in the lake, at A is 60° . Find the distance of the cloud from A.
36. A cloud tower stands on a horizontal plane and is surmounted by a vertical flagstaff of height h . At a point on the plane, the angle of elevation of the bottom and the top of the flagstaff are α and β . prove that the height of tower is $\frac{h \tan \alpha}{\tan \beta - \tan \alpha}$.
37. A man standing on the deck of a ship, which is 10 m above the water level, observes the angle of elevation of the top of a hill as 60° and the angle depression of the base of the hill as 30° . find the distance of the hill from the ship and the height of the hill.

38. A straight highway leads to the foot of a tower. A man standing at the top of the tower observes a car at the angle depression of 30° , which is approaching to the foot of the tower with a uniform speed. Six seconds later, the angle of the depression of the car is found to be 60° . Find the time taken by the car to reach the foot of the tower.
39. From a point P on the ground the angle of elevation of the top of a 10 m tall building is 30° . A flag is hoisted at the top of the building and the angle of elevation of the top of the flagstaff from P is 45° . Find the length of the flagstaff and the distance of the building from the point P.
- An observer 1.5 m tall is 28.5 m away from a chimney. The angle of elevation of the top of the chimney from her eyes is 45° . What is the height of the chimney?
40. The angles of depression of the top and the bottom of an 8 m tall building from the top of a multistoried building are 30° and 45° , respectively. Find the height of the multistoried building and the distance between the two buildings.
41. The angles of elevation of the top of a tower from two points at a distance of 4 m and 9 m from the base of the tower and in the same straight line with it are complementary. Prove that the height of tower is 6 m.
42. A 1.2 m tall girl spots a balloon moving with the wind in a horizontal line at a height of 88.2 m from the ground. The angle of elevation of the balloon from the eyes of the girl at any instant is 60° . After some time, the angle of elevation reduces to 30° . Find the distance travelled by the balloon during the interval.
43. A TV tower stands vertically on a bank of a canal. From a point on the other bank directly opposite the tower, the angle of elevation of the top of the tower is 60° . From another point 20 m away from this point on the line joining this point to the foot of the tower, the angle of elevation of the top of the tower is 30° . Find the height of the tower and the width of the canal.
44. One card is drawn from a well-shuffled deck of 52 cards. Find the probability of getting
(i) a king of red colour (ii) a face card
45. In a play zone, Amit is playing claw crane game which consist of 58 teddy bears, 42 Pokémon's, 36 tigers and 64 monkeys. Amit picks a puppet at random. now
1. Find the probability of getting a tiger.
 2. Find the probability of getting a monkey.
 3. Find the probability of getting not a monkey
 4. Find the probability of getting not a Pokémon
46. Two coins are tossed simultaneously. What is the probability of getting
(a) At least one head? (b) At most one tail? (c) A head and a tail?
47. Two dice are thrown simultaneously. find the probability of getting:
- i) An even number as the sum: ii). A doublets: iii) An odd number as the sum: