Anand Niketan
Maninagar Campus

Grade : X	Subject : Mathematics	Date : 03/07/2019
Name :	Practice Worksheet - I	Chapter No. 1, 2,10,15

1. A bag contains 9 black and 12 white balls. One ball is drawn at random. What is the probability that the ball drawn is black?
2. Find the probability that a number selected from the numbers 1 to 25 which is not a prime number when each of the given number is equally likely to be selected.
3. A bag contains 10 red, 5 blue and 7 green balls. A ball is drawn at random. Find the probability of this ball being not a blue ball.
4 Two dice are thrown at the same time and the product of numbers appearing on them is noted. Find the probability that the product is less than 9.
5. Cards, marked with numbers 5 to 50, are placed in a box and mixed thoroughly. A card is drawn from the box at random. Find the probability that the number on the taken out card is:
   (i) a prime number less than 10.
   (ii) a number which is a perfect square.
6. Two different dice are tossed together. Find the probability:
   (i) That the numbers on either die is even.
   (ii) That the sum of numbers appearing on the two dice is 5.
7. From a well shuffled pack of playing cards, black jacks, black kings and black aces are removed. A card is then drawn from the pack. Find the probability of getting.
   (i) a red card (ii) not a diamond card.
8. Two dice are thrown simultaneously. What is the probability that
   (i) 5 will not come up on either of them?
   (ii) 5 will come up on at least one?
   (iii) 5 will come up at both dice?
9. A bag contains cards which are numbered from 2 to 90. A card is drawn at random from the bag. Find the probability that it bears.
   (i) a two-digit number (ii) a number which is a perfect square.
10. Cards numbered 1 to 30 are put in a bag. A card is drawn at random from this bag. Find the probability that the number on the drawn card is:
    (i) not divisible by 3. (ii) a prime number greater than 7.
    (iii) not a perfect square number.
11. The LCM and HCF of two numbers are 240 and 12 respectively. If one of the numbers is 60, then find the other number.
12. The HCF and LCM of two numbers are 9 and 360 respectively. If one number is 45, write the other number.
13. Using Euclid's division algorithm, find the HCF of 56, 96 and 404.
14. Find the HCF of 52 and 117 and express it in form $52x + 117y$.
15. Prove that $x^2 – x$ is divisible by 2 for all positive integer x
16. If m and n are odd positive integers, then $m^2 + n^2$ is even, but not divisible by 4. Justify.
17. If HCF (6, a) = 2 and LCM (6, a) = 60, then find a.
18. Find the greatest number of 5 digits exactly divisible by 12, 15 and 36.
19. Find the smallest number which when increased by 20 is exactly divisible by 90 and 144.
20. Find the smallest number which leaves remainder 8 and 12 when divided by 28 and 32 respectively.
21. Floor of a room is to be fitted with square marble tiles of the largest possible size. The size of the room is 10 m × 7 m. What should be the size of tiles required that has to be cut and how many such tiles are required?
22. For what value of p, (–4) is a zero of the polynomial $x^2 – 2x – (7p + 3)$?
23. Find the quadratic polynomial whose zeroes are 1 and –3. Verify the relation between the coefficients and the zeroes of the polynomial.

24. If α and β are zeroes of the quadratic polynomial $x^2 - 6x + a$; find the value of 'a' if $3\alpha + 2\beta = 20$
25. If the polynomial $x^4 + 2x^3 + 8x^2 + 12x + 18$ is divided by another polynomial $x^2 + 5$, the remainder comes out to be $px + q$. Find the value of p and q.
26. Using division algorithm, find the quotient and remainder on dividing f(x) by g(x), where $f(x) = 6x^3 + 13x^2 + x - 2$ and $g(x) = 2x + 1$
27. Find the zeroes of the quadratic polynomial $4x^2 - 4x - 3$ and verify the relation between the zeroes and its coefficients.
28. Find all the zeros of the polynomial $x^4 + x^3 - 34x^2 - 4x + 120$, if two of its zeroes are 2 and – 2.
29. If the product of zeroes of the polynomial $ax^2 - 6x - 6$ is 4, find the value of 'a'.
30. If one zero of the polynomial $(a^2 - 9)x^2 + 13x + 6a$ is reciprocal of the other, find the value of 'a'.
31. Find the quadratic polynomial, the sum of whose zeroes is 8 and their product is 12. Hence, find the zeroes of the polynomial.
32. Write a quadratic polynomial, the sum and product of whose zeroes are 3 and –2 respectively.
33. If 1 is a zero of the polynomial $p(x) = ax^2 - 3(a - 1)x - 1$, then find the value of a.
34. If $(x + a)$ is a factor of $2x^2 + 2ax + 5x + 10$ find a.
35. Prove that the parallelogram circumscribing a circle is a rhombus.
36. Prove that the tangents drawn at the ends of a chord of a circle make equal angles with the chord.
37. In two concentric circle, a chord of the larger circle touches the smaller circle. If the length of this chord is 8 cm and the diameter of the smaller circle is 6 cm, then find the diameter of the larger circle.
38. Prove that the angle between the two tangents to a circle drawn from an external point is supplementary to the angle subtended by the line segment joining the points of contact at the centre.
39. ABC is an isosceles triangle, in which AB = AC, circumscribed about a circle. Show that BC is bisected at the point of contact.
40. Two concentric circle have a common centre O. The chord AB to the bigger circle touches the smaller circle at P. If OP = 3 cm and AB = 8 cm then find the radius of the bigger circle.
41. Given two concentric circle of radii 10 cm and 6 cm. Find the length of the chord of the larger circle which touches the other circle.
42. Two tangents PA and PB are drawn from an external point P to a circle with centre O. Prove that AOBP is a cyclic quadrilateral.
43. In a right ΔABC, right angled at B, BC = 5 cm and AB = 12 cm. The circle is touching the sides of ΔABC. Find the radius of the circle.