Maths Worksheet
Class- 10 math

Real Numbers

1. The LCM and HCF of two numbers are 675 and 45. If one of the number is 135, then find other Number.
2. Find the HCF of 4032 and 262 by prime factorization method.
3. Check whether 9^n can end with 0 for any natural number n
4. Find smallest number which when divided by 28 and 32 leaves remainder 8 and 12 respectively.
5. Find the greatest number of four digits which is exactly divisible by 15,24 and 36
6. Explain why 7x11x13+13 and 7x6x5x4x3x2+5 are composite numbers.
7. Prove that $\sqrt{7}$ is an irrational number.
8. Prove that $(2+\sqrt{3})$ is an irrational number
9. Classify the following numbers as rational as irrational
   (I) 3.14 (II) $\sqrt{21}$ (III) 2.656565……. (IV) $0.\overline{6}$ (V) $\sqrt[3]{3}$
10. Give an example of two irrational numbers whose sum is rational

Poly Nomial

11. Find the zeros of the following equations and verify the relationship between the zeros and thecoefficient
    (I) $4x^2 - 4x - 3$ (II) $5x^2 - 8x - 4$ (III) $8x^2 - 4$ (IV) $5x^2 + 10x$
12. If α and β are the zeros of the polynomial $p(x) = 2x^2 + 5x + K$ satisfying the relation $\alpha^2 + \beta^2 + \alpha\beta = \frac{21}{4}$, then find the value of k
13. Find the quadratic polynomial sum of whose zeros is 8 and their product is 12 Hence, find the zeros of the polynomial
14. If (x+a) is a factor of $(2x^2+2ax+5x+10)$ then find value of a .
15. If one zero of the polynomial $(a^2+9)x^2+13x+6a$ is the reciprocal of the other. Find the value of a.

3. Pair of linear equation in two variables.

16. Solve each of the following systems of equation graphically
    (I) $2x + 3y = 2$, $x - 2y = 8$ (II) $3x + y + 1 = 0$, $2x - 3y + 8 = 0$ (III) $3x + 2y = 12$, $5x - 2y = 4$
17. On comparing the ratio $\frac{a_1}{a_2}$, $\frac{b_1}{b_2}$ and $\frac{c_1}{c_2}$, find out which of the following pair of linear equations interest at a point , are parallel or Coincident
    (I) $2x + 3y = 0$, $3x + 4y = 5$ (II) $2x - 3y = 13$, $7x - 2y = 20$ (III) $4x - 3y = 8$, $6x - y = \frac{29}{3}$ (IV) $2x - \frac{3y}{4} = 3$, $5x = 2y + 7$
18. Solve by elimination method.
    (I) $0.4x + 0.3y = 1.7$, $0.7x - 0.2y = 0.8$ (II) $\frac{5}{x} + 6y = 13$, $\frac{3}{x} + 4y = 7$
19. Solve by substitution method.
    (I) $\sqrt{2}x + \sqrt{3}y = 0$, $\sqrt{3}x - \sqrt{8}y = 0$ (II) $\frac{3}{x} + \frac{8}{y} = -1$, $\frac{1}{x} - \frac{2}{y} = 2$

Quadratic Equation

20. Find the discriminate of the quadratic equation $2x^2 - 4x + 3 = 0$
21. Find the value of k for the following quadratic equations whose roots are real and equals –
    $2x^2 + kx + 3 = 0$
22. Find the nature of the following quadratic equation if the real roots exist, find them
    (I) $2x^2 - 3x + 5 = 0$ (II) $3x^2 - 4\sqrt{3}x + 4 = 0$ (III) $2x^2 - 6x + 3 = 0$
23. If, a quadratic equation is $ax^2 + bx + c = 0$ then prove that solution of the quadratic equation
    $X = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
24. If –5 is a root of the quadratic equation $2x^2 + px - 15 = 0$ and the quadratic equation $p(x^2 + x) + k = 0$ has equal roots, find value of K
25. find the value of k for which quadratic equation $9x^2 - 3kx + k = 0$ has real and equal roots.
26. Find values of p for which the quadratic equation $(P+1)x^2 - 6(p+1)x + 3(P+9) = 0$ $P \neq -1$ has equal Roots.
27. Find two numbers whose sum is 27 and product is 182
28. Find the roots of the following quadratic equations by factorization
    (I) $100x^2 - 20x + 1 = 0$ (II) $x^2 - 9x + 20 = 0$