

SURAJ SCHOOL

REWARI

A vibrant, circular graphic with a wooden plank texture. The text "Holiday Homework" is written in a bold, red, outlined font across the center. The graphic is surrounded by various icons: a glowing lightbulb, a beach umbrella, a beach ball, sunglasses, flip-flops, starfish, tropical leaves, a molecular structure, a DNA helix, and laboratory glassware. The background features faint, repeating icons of school-related items like books, a microscope, and a calculator.

Holiday Homework

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Class 10th, Mathematics

1. If $\text{LCM}(a, b) = 910$ and $\text{HCF}(a, b) = 2$ where $a = 130$ then find b .
2. If a pair of linear equations in two variables is inconsistent, then find the graphical representation by two equations.
3. What is the LCM of smallest prime number and smallest composite number?
4. Find LCM of $(22 \times 3 \times 5)$ and $(24 \times 5 \times 7)$.
5. Two numbers are in the ratio of 15:11. If their HCF is 13, then find the number.
6. If the sum of the zeroes of the quadratic polynomial : $3x^2 - kx + 6$ is 3, then find the value of k .
7. How many polynomials can be formed with -2 and 5 as zeroes? Explain.
8. If one zero of the quadratic polynomial $(k-1)x^2 + kx + 1$ is -3, then find the value of k .
9. Find a quadratic polynomial, sum of whose zeroes is 9 and product is 14.
10. Assertion: The HCF of two numbers is 13 and LCM is 390. The numbers are 26 and 195
Reason: For any two positive integers a and b , $\text{HCF}(a, b) \times \text{LCM}(a, b) = a \times b$.
 - a. Both (A) and (R) are true and (R) is the correct explanation of (A).
 - b. Both (A) and (R) are true but (R) is not the correct explanation of (A).
 - c. (A) is true but (R) is false.
 - d. (A) is false but reason (R) is true.
11. Given that $\sqrt{7}$ is irrational, prove that $2 + 3\sqrt{7}$ is irrational.
12. If a and b are two positive integers such that the least prime factor of a is 3 and the least prime factor of b is 5. Then find the least prime factor of $(a + b)$.
13. If α and β are the zeroes of the polynomial $x^2 - 6x + 8$, then find the value of $\alpha^3 + \beta^3$.
14. Find the value(s) of k for which the equation $x^2 + 4kx + 16 = 0$ has real and equal roots.
15. Assertion: The HCF of two numbers is 18 and their product is 3072. Then their LCM = 169.
Reason: If a, b are two positive integers, then $\text{HCF} \times \text{LCM} = a \times b$.
 - a. Both (A) and (R) are true and (R) is the correct explanation of (A).
 - b. Both (A) and (R) are true but (R) is not the correct explanation of (A).
 - c. (A) is true but (R) is false.
 - d. (A) is false but reason (R) is true.
16. For what value of k will the following pair of linear equations is inconsistent;
 $3x + y = 1$ and $(2k - 1)x + (k - 1)y = 2k + 1$
17. Given that $\sqrt{2}$ is irrational, prove that $5 + 3\sqrt{2}$ is irrational.
18. If one root of the polynomial $f(x) = 5x^2 + 13x + k$ is reciprocal of the other, then
 - (a) Find the value of k (b) Find sum of roots .
19. The HCF of two numbers is 27 and their LCM is 162. If one of the n is 54, what is the other no..
20. The zeros of the quadratic polynomial $x^2 + 88x + 125$ are
 - (a) Both Negative (b) Both Positive (c) Both Equal (d) one +ve and one -v
21. Learn the Trigonometric value of $(0^\circ, 30^\circ, 45^\circ, 60^\circ, \text{ and } 90^\circ)$ sin, cos, tan, cot, sec, and cosec .

22. ABCD is a trapezium in which $AB \parallel DC$ and its diagonals intersect each other at the point O. Show that $AO/BO = CO/DO$.

23. Diagonals AC and BD of a trapezium ABCD with $AB \parallel DC$ intersect each other at the point O. Using a similarity criterion for two triangles, show that $AO/OC = OB/OD$

24. Sides AB and AC and median AD of a triangle ABC are respectively proportional to sides PQ and PR and median PM of another triangle PQR. Show that $\Delta ABC \sim \Delta PQR$.

25. E is a point on the side AD produced of a parallelogram ABCD and BE intersects CD at F. Show that $\Delta ABE \sim \Delta CFB$.

26. State and prove BPT.

27. State and prove converse of BPT.

28. Using Converse of basic proportionality theorem, prove that the line joining the mid-points of any two sides of a triangle is parallel to the third side

29. E and F are points on the sides PQ and PR, respectively of a ΔPQR . For each of the following cases, state whether $EF \parallel QR$.

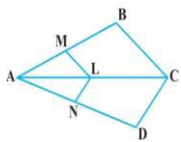
(i) $PE = 3.9$ cm, $EQ = 3$ cm, $PF = 3.6$ cm and $FR = 2.4$ cm

(ii) $PE = 4$ cm, $QE = 4.5$ cm, $PF = 8$ cm and $RF = 9$ cm

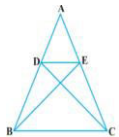
30. All circles are _____. (congruent, similar)

31. Two polygons of the same number of sides are similar, if (a) their corresponding angles are _____ and (b) their corresponding sides are _____. (equal, proportional)

32. In the figure, if $LM \parallel CB$ and $LN \parallel CD$, prove that $AM/AB = AN/AD$



33. In the figure, if $\Delta ABE \cong \Delta ACD$, show that $\Delta ADE \sim \Delta ABC$.



34. Which term of the A.P. 3, 8, 13, 18, ... is 78?

35. Find the number of terms in the following A.P.

(i) 7, 13, 19, ..., 205.

36. Check whether -150 is a term of the A.P. 11, 8, 5, 2, ...

37. Find the 31st term of an A.P. whose 11th term is 38 and the 16th term is 73.

38. 1. An A.P. consists of 50 terms of which 3rd term is 12 and the last term is 106. Find the 29th term.

39. If the 3rd and the 9th terms of an A.P. are 4 and -8 respectively. Which term of this A.P. is zero.
40. If 17th term of an A.P. exceeds its 10th term by 7. Find the common difference.
41. Which term of the A.P. 3, 15, 27, 39,.. will be 132 more than its 54th term?
- 42.. Two APs have the same common difference. The difference between their 100th term is 100, what is the difference between their 1000th terms?
- 43.. How many three digit numbers are divisible by 12 ?
44. . How many multiples of 13 lie between 234 and 867 ?
45. For what value of n , are the n th terms of two APs 63, 65, 67, and 3, 10, 17, ... equal ?
- 46.. Determine the A.P. whose third term is 16 and the 7th term exceeds the 5th term by 12.
47. Find solution of $4/x+3y=14$ and $3/x-4y=23$.
48. Ritu can row downstream 20 km in 2 hours, and upstream 4 km in 2 hours. Her speed of rowing in still water. Find the speed of the current .
49. The angles of cyclic quadrilaterals ABCD are: $A = (6x+10)^\circ$, $B=(5x)^\circ$, $C = (x+y)^\circ$ and $D=(3y-10)^\circ$. Find the value of x and y .
50. Name the type of quadrilateral by joining the points $(-1, -2)$, $(1, 0)$, $(-1, 2)$, $(-3, 0)$.
- 51 . If the distance between the points $A(2, -2)$ and $B(-1, x)$ is equal to 5, then find the value of x .
52. find 20th term from the last term of the A.P. 3, 8, 13, ..., 253 .
53. Find the sum of the first five multiples of 3 .
54. Write a note on a famous Indian mathematician.
55. Verify the area of Circle by Paper Cutting and Pasting Method