

**DELHI PUBLIC SCHOOL, JAMMU  
ASSIGNMENT FOR SA-II (2017-18)**

**Class : 9th**  
**Subject : Math**

Q1. If  $x = 4 - \sqrt{15}$ , find the value of  $\left(x + \frac{1}{2}\right)^2$ .

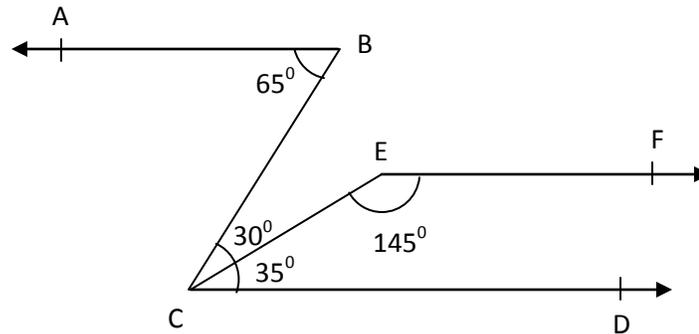
Q2. Simplify:  $\frac{1}{\sqrt{3} + \sqrt{2}} - \frac{2}{\sqrt{5} - \sqrt{3}} - \frac{3}{\sqrt{2} - \sqrt{5}}$ .

Q3. Simplify:  $\sqrt[4]{81} - 8\sqrt[3]{216} + 15\sqrt[5]{32} + \sqrt{225}$ .

Q4. Plot the points P(1, 0), Q (4, 0) and S (1, 3). Find the coordinate of the point R such that PQRS is a square.

Q5. Plot the points (6, 5), (6, -3) and (-2, -3). Join them to find the figure and find the area of the figure so obtained.

Q6. In the given, figure,  $\angle ABC = 65^\circ$ ,  $\angle BCE = 30^\circ$ ,  $\angle DCE = 35^\circ$  and  $\angle CEF = 145^\circ$ . Shows that  $AB \parallel EF$ .



Q7. If two parallel lines are intersected by a transversal, the prove that the bisectors of any two alternate angles are parallel.

Q8. Factorise the following:  $12\left(4x - \frac{1}{4x}\right)^2 + 5\left(4x - \frac{1}{4x}\right) - 2$ .

Q9. If  $ax^3 + bx^2 + x - 6$  has  $(x + 2)$  as a factor and leaves remainder 4 when divided by  $(x - 2)$ . Find the values of a and b.

Q10. Factorise  $x^4 - 7x^3 + 9x^2 + 7x - 10$  by using factor theorem.

Q11. Insert 5 rational numbers between  $\frac{3}{5}$  and  $\frac{5}{7}$ .

Q12. Express  $3.42\bar{5}$  in the form of  $\frac{P}{q}$ , where 'P' and 'q' are integers,  $q \neq 0$ .

Q13. If the bisectors of angles B and C of a triangle ABC meet at O. Prove that  $\angle BOC = 90^\circ + \frac{1}{2} \angle A$ .

Q14 Draw the graph of  $x+y=7$  and  $x-y=7$  on the same Graph

Q15 Ten students of class 9<sup>th</sup> took part in the Mathematics quiz. If the no of girls is 4 more than the no of boys, find the no of boys and girls who took part in the quiz.

Q16 Show that the line segment joining the midpoints of the opposite sides of a Quadrilateral Bisect each other.

Q17 Three coins are tossed simultaneously find the Probability of getting.

1-Exactly one tail

2-atleast two heads .

3- at most one point

Q18. Factorize  $(a + 2)^2 + r^2 + 2r(a + 2)$ .

Q19. Find the value of 'a' if  $(x - a)$  is a factor of  $x^5 - a^2 x^2 + 2x + a + 3$ , hence factorise  $x^2 - 2ax - 3$ .

Q20. If  $2\sqrt{x} + \sqrt{5x - 4\sqrt{x}} = 1$  then show that  $x - 1 = 0$ .

Q21. The sum of two angles of a triangle is equal to the third angle. Determine the third angle.

Q22. Prove that two triangles are congruent if any two angle and the included side of one triangle is equal to any two angles and the included side of the other triangle.

Q23. The area of an equilateral triangle is  $2\sqrt{3}$ square centimeter Find the perimeter.

Q24. The sides of a triangle are p , q and r if  $p+q = 45$  ,  $q + r = 40$  and  $p + r = 35$  Then find the area of the triangle.

Q25. The sides of a triangular plot are in the ratio of 3: 5 : 7 and the perimeter is 300 m. Find its area.

Q26:- Q19:-A field is in the shape of a trapezium whose parallel sides are 25m and 10m. the non parallel sides are 14m and 13m. Give the area of the field

Q27:-A dome of a building is in the form of a hemisphere from inside ,it was whitewashed at the cost of rupees 498.96.If the cost of the white washing is RS2.00per square meter, Find the inside surface area of the dome,volume of the air inside the dome.

Q28:- Draw the histogram of the following .

Class:- $(0-20),(20-30),(30-40),(40-50),(50-60),(60-70),(70-100)$

Marks:-7 , 10 , 10 20 20 15