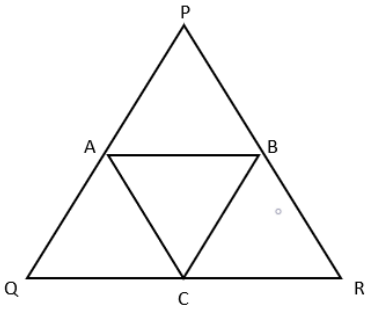
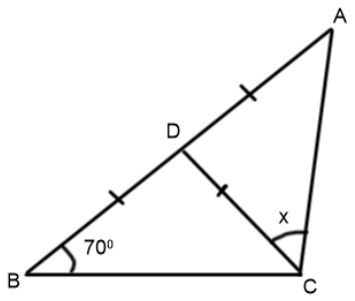
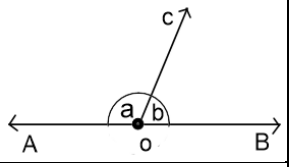
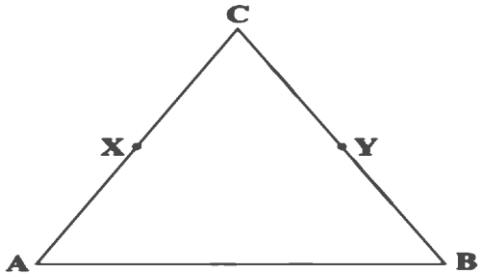
# INDIAN SCHOOL AL WADI AL KABIR

**Class IX**, Mathematics (2025-26)

**Holiday Assignment - Worksheet**

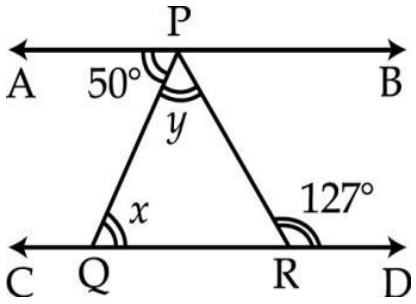
## SHORT AND LONG ANSWER TYPE QUESTIONS

| | |
|---|---|
| **Q1.** | Simplify: $\sqrt[4]{\left(\frac{169}{289}\right)^{-2}}$ |
| **Q2.** | Factorize: $6 - x - x^2$ |
| **Q3.** | Find the perimeter of an equilateral triangle whose area is $16\sqrt{3}\ cm^2$. |
| **Q4.** | Two supplementary angles are in the ratio of 2 : 7.Find the measures of angles. |
| **Q5.** | Find the value of x and y if,<br>(i) (x + 3, 5) = (5, y)<br>(ii) (2, 2y – 3) = (x, 9) |
| **Q6.** | If p+ q = 12 and pq = 27, find the value of $p^3 + q^3$. |
| **Q7.** | Find the value of k for which the point $(-1, 3)$ lies on the graph of the equation,<br>2x – y + k = 0 |
| **Q8.** | Find a and b, if $\frac{2\sqrt{5}+\sqrt{3}}{2\sqrt{5}-\sqrt{3}} + \frac{2\sqrt{5}-\sqrt{3}}{2\sqrt{5}+\sqrt{3}} = a + \sqrt{15}\ b$. |
| **Q9.** | Find the perimeter of ΔABC, if perimeter of ΔPQR is 36cm and A, B and C are midpoints.<br>  |
| **Q10.** | Solve the equation $a-15=25$, and state which axiom did you use. |
| **Q11.** | Rationalize the denominator of $\frac{6-4\sqrt{2}}{6+4\sqrt{2}}$. |
| **Q12.** | Sides of a triangle are 70 cm, 80 cm, and 90 cm. Find its area. (Use $\sqrt{5}=2.23$) |

| | |
|---|---|
| **Q13.** | Find the measure of x in the given figure.<br>  |
| **Q14.** | Without actually calculating the cubes, find the value of $(35)^3 + (-15)^3 + (-20)^3$ |
| **Q15.** | Write any two (a)Euclid's axioms (b) Euclid's postulates |
| **Q16.** | The class marks of the frequency distribution are 10, 20, 30, 40, …..Then answer the following questions:<br>(i) The class representing the class mark 30 is_____.<br>(ii) The class size of the class interval is _____.<br>(iii) If the mid value of a class is 10 and the width of the class is 6. Then the lower limit of the class is_____. |
| **Q17.** | In the given figure, ∠AOC and ∠BOC form a line AB.<br>If $a - b = 80°$, find the values of $a$ and $b$.<br>  |
| **Q18.** | Express $5y=2x-7$ in the form of ax + by + c = 0 and indicate the values of a, b and c. |
| **Q19.** | Simplify $\sqrt{48} - \sqrt{72} - \sqrt{27} + 2\sqrt{18}$ |
| **Q20.** | One angle of a quadrilateral is of 108° and the remaining three angles are in the ratio 1:2:3. Find each of the three angles. |
| **Q21.** | If $x = 2 + \sqrt{3}$, find the value of $x^2 + \frac{1}{x^2}$ . |
| **Q22.** | In the figure given below X and Y are the mid-points of AC and BC and AX = CY. Show that AC = BC.<br>  |
| **Q23.** | Express $0.34\overline{5}$ in $\frac{p}{q}$ form, where p and q are integers and q≠ 0. |

**Q24.** In the adjacdent figure, if AB ∥ CD, ∠ APQ = 50° and ∠ PRD = 127°.

Find the values of x and y.



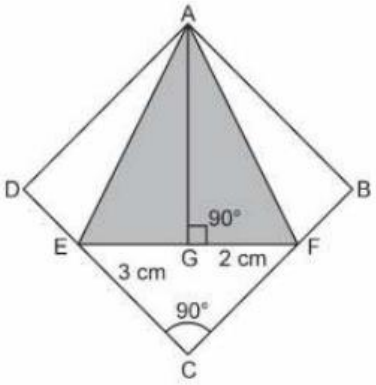

**Q25.** The marks obtained (out of 100) by a class of 75 students are given below.

Construct a histogram with frequency polygon to represent the following data.

| Marks | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 |
|---|---|---|---|---|---|
| Number of students | 4 | 15 | 12 | 26 | 18 |

**Q26.** In the given figure, $\Delta AFB \cong \Delta AFG, \Delta ADE \cong AGE$ and $\angle EAF = 45°$. Then find the measure of $\angle DAB$.

**(COMPETENCY BASED)**



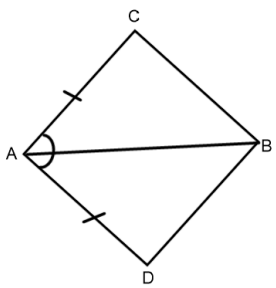

**Q27.** Factorize: $x^3 - 9x^2 + 23x - 15$.

**Q28.** Represent $\sqrt{9.5}$ on the number line.

**Q29.** Plot the points A (1,3), B (1, −1), C (7,−1) and D (7, 3) in cartesian plane. Join them in order and name the figure so obtained.

**Q30.** In the given quadrilateral ACBD, $AC = AD$ and AB bisects $\angle A$. Show that $\Delta ABC \cong \Delta ABD$.

What can you say about BC and BD?



| ANSWERS | | | | | |
|---|---|---|---|---|---|
| **Q1.** | $\frac{17}{13}$ | **Q2.** | (2-x) (3+x) | **Q3.** | 24 |
| **Q4.** | $40°, 140°$ | **Q5.** | (i) x=2, y=5<br>(ii) x=2, y=6 | **Q6.** | 756 |
| **Q7.** | 5 | **Q8.** | $a = \frac{46}{17}, b = 0$ | **Q9.** | 18 cm |
| **Q10.** | a=40, Axiom 2 | **Q11.** | $17 - 12\sqrt{2}$ | **Q12.** | 2676 $cm^2$ |
| **Q13.** | $20°$ | **Q14.** | 31500 | **Q15.** | - |
| **Q16.** | (i) 25-35, (ii) 10, (iii) 7 | **Q17.** | $130°, 50°$ | **Q18.** | a=2, b= -5, c= -7 |
| **Q19.** | $\sqrt{3}$ | **Q20.** | $42°, 84°, 126°$ | **Q21.** | 14 |
| **Q22.** | - | **Q23.** | $\frac{311}{900}$ | **Q24.** | x=50, y= 77 |
| **Q25.** | - | **Q26.** | $90°$ | **Q27.** | (x-1) (x-5) (x-3) |
| **Q28.** | - | **Q29.** | Rectangle | **Q30.** | - |