

MATHS WORK SHEET – PERIODICAL TEST –I

STD – IX

NUMBER SYSTEM

1. Represent $0.\overline{237}$ in the form of p/q , where p & q are integers and $q \neq 0$.
2. If $x = 3 - 2\sqrt{2}$, find the value of $\sqrt{x} + \frac{1}{\sqrt{x}}$.
3. Simplify: $\sqrt{50} - \sqrt{98} + \sqrt{162}$.
4. Show that : $x^{\frac{a(b-c)}{c}} \div \left[\frac{(x^b)}{x^a} \right] = 1$
5. Simplify : $\frac{6-4\sqrt{3}}{6+4\sqrt{3}}$ by rationalizing the denominator
6. Find three rational numbers between $\frac{5}{7}$ and $\frac{9}{11}$.
7. Represent $\sqrt{4.5}$ on the number line.
8. If $\frac{3}{4\sqrt{5}-\sqrt{3}} + \frac{2}{4\sqrt{5}-\sqrt{3}} = a\sqrt{5} + 6\sqrt{3}$, then find the values of a & b .
9. Write $\sqrt[3]{4}, \sqrt{3}, \sqrt[4]{6}$ in ascending order.
10. Express $1.3\overline{2} + 0.\overline{35}$ in the form $\frac{p}{q}$, where p & q are integers and $q \neq 0$.
11. If $x = 4 - \sqrt{15}$, find the value of $(x + \frac{1}{x})^2$.
12. Find a and b if $\frac{2\sqrt{5} + \sqrt{3}}{2\sqrt{5} - \sqrt{3}} + \frac{2\sqrt{5} - \sqrt{3}}{2\sqrt{5} - \sqrt{3}} = a + \sqrt{15}b$

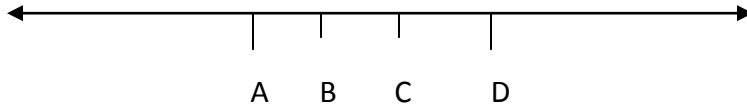
Polynomials

1. For what value of k , is the polynomial $p(x) = 2x^3 - kx^2 + 3x + 10$ exactly divisible by $(x + 2)$?
2. Find the remainder when $x^3 + 6x - a$ is divided by $x - a$.
3. Factorise : $64x^3 - 27b^3 - 144a^2b + 108ab^2$
4. Expand $(\frac{a}{4} - \frac{b}{2} + 1)^2$ using identity.
5. If $(x + \frac{1}{x}) = 3$, then find $x^3 + \frac{1}{x^3}$
6. i. using suitable identity, evaluate $(998)^3$
 ii. Which mathematical concept is used in this problem?
 iii. What is its value?
7. If $(3x - 2)$ is a factor of $3x^3 + x^2 - 20x + 12$, find other factors.
8. Factorise : $125x^3 - 27y^3 + z^3 + 45xyz$.

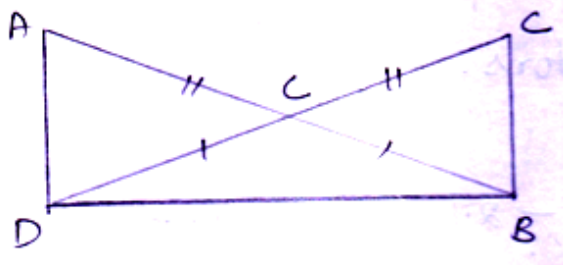
- Polynomials $(3x^3 - 5x^2 + kx - 2)$ and $-x^3 - x^2 + 7x + k$ leave the same remainder when divided by $x + 2$. Find the value of k .
- If $f(x) = x^2 - 5x + 7$, evaluate $f(2) - f(7) + f(1/3)$.
- Without actual division, show that $f(x) = 2x^4 - 6x^3 + 3x^2 + 3x - 2$ is exactly divisible by $x^2 - 3x + 2$.

Introduction to Euclid's Geometry

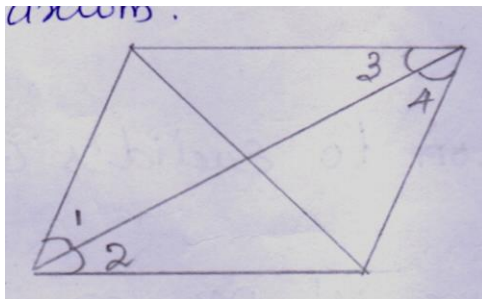
- In the given figure, If $AB = CD$, then prove that $AC = BD$. Also write the euclid's axiom used for proving if.



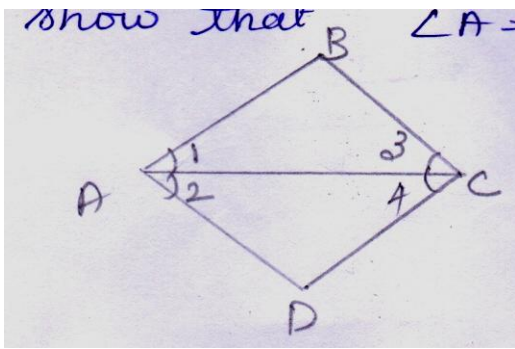
- In the given figure $AC = DC$, $CB = CE$, show that $AB = DE$



- If a point C lies between two points A and B such that $AC = BC$, the point C is called the mid point of lines segment AB . Prove that every line segment has one and only one mid-point.
- In the given figure, if $\angle 1 = \angle 3$, $\angle 2 = \angle 4$ and $\angle 3 = \angle 4$. Write relation between $\angle 1$ and $\angle 2$, using euclid's axiom

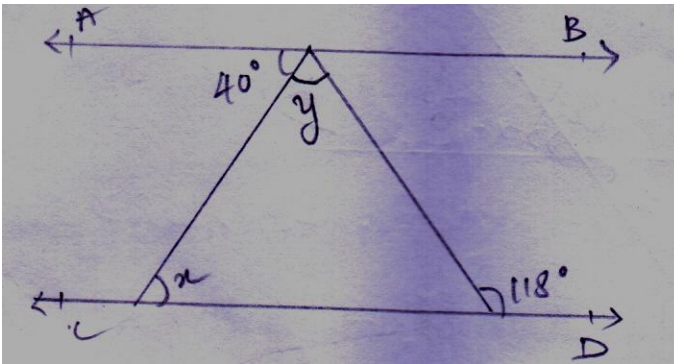


- It is known that $x + y = 10$ and that $x = z$. show that $z + y = 10$.
- In the given figure, we have $\angle 1 = \angle 3$ and $\angle 2 = \angle 4$. Show that $\angle A = \angle C$

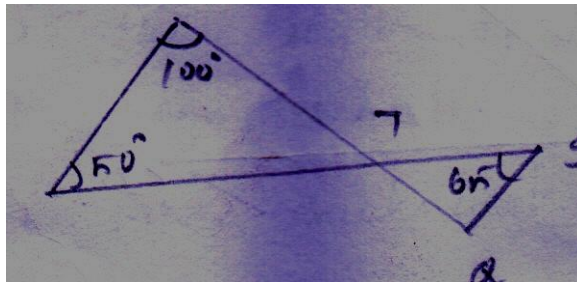


Lines and Angles

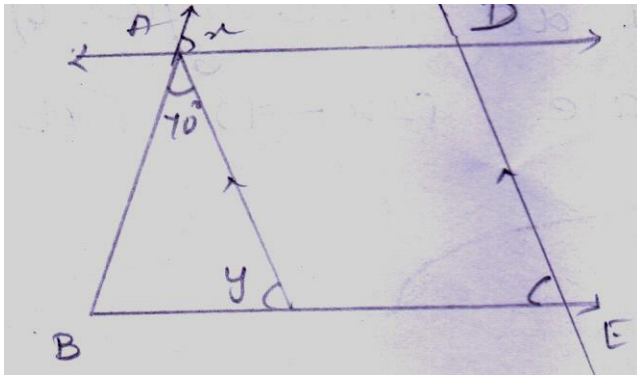
1. In figure, if $AB \parallel CD$, $\angle APQ = 40^\circ$ and $\angle PRD = 118^\circ$. Find x and y .



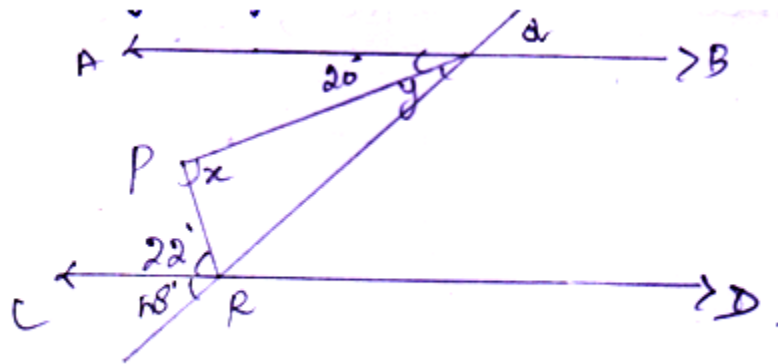
2. In figure, if lines PQ and RS intersect at point T, such that $\angle PRT = 50^\circ$, $\angle TSQ = 60^\circ$ and $\angle RPT = 100^\circ$, Find $\angle SQT$.



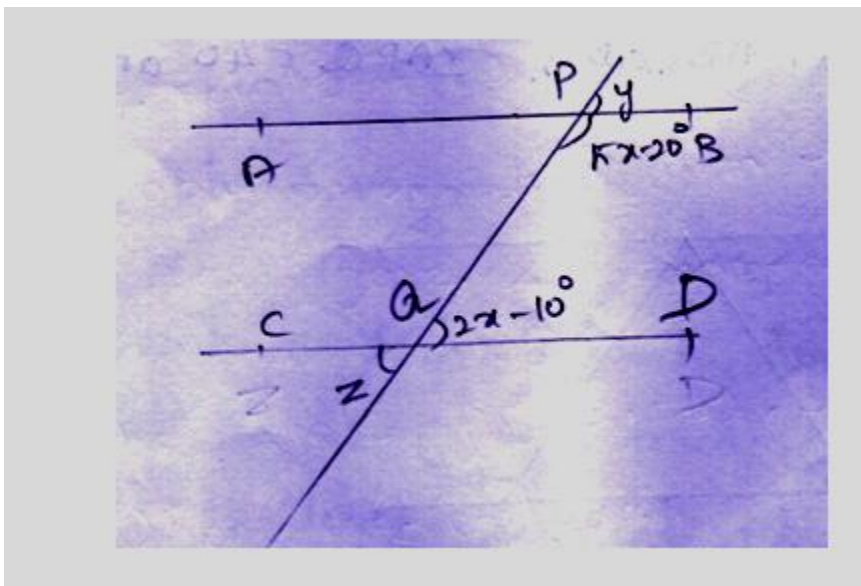
3. In the given figure, $AC \parallel DE$ and $AD \parallel CE$, find x and y , when it is given that $\angle BAC = 70^\circ$ and $\angle DEC = 55^\circ$



4. In the given figure, find the value of x and y if $AB \parallel DE$



5. In the given figure, if $AB \parallel CD$, $\angle BPQ = 5x - 20^\circ$ and $\angle PQD = (2x - 10^\circ)$, find the value of y and z .



6. Prove that the sum of three angles of a triangle is 180° . Using this result find the value of x and all three angles of triangle if the angles are $(2x - 7)^\circ$, $(x + 25)^\circ$, and $(3x + 12)^\circ$.

5 – co-ordinate Geometry:

1. Draw the points $A(3,10)$, $B(-3,5)$ and $C(-1,-6)$ on the graph paper. Join them in pairs and identify the figure so formed.
2. Plot the points $A(-3,-3)$, $B(3, -3)$, $C(3,3)$, $D(-3,3)$ in the Cartesian plane. Also, find the length of line segment AB .
3.
 - i. plot the points $M(5,-3)$ and $N(-3,-3)$
 - ii. What is the length of MN ?
 - iii. Find the Co-ordinates of points A, B , and C lying on MN , such that.
 $MA = AB = BC = CN$.
4. Plot the following point in the Cartesian plane:

$A(5,0)$, $B(3,2)$, $C(0,-5)$, $D(-6,1)$, $E(-4, -4)$, $F(2, -3)$

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