

MATHS HOLIDAY HOMEWORK FOR CLASS IX A,B,C

1. Simplify: $125^{-1/3}$
2. Find the zero of polynomial $p(x) = 3x - 2$
3. Write the coordinates of the point whose ordinate is 5 and abscissa is -3
4. State play fair's axiom .
5. Write 2 different rational numbers between $1/7$ and $2/7$.
6. Find k if $x-1$ is a factor of $p(x) = kx^2 - \sqrt{2}x + 1$
7. Find the value without actually calculating the cubes .

$$(23)^3 + (-15)^3 + (-13)^3$$

8. Name the quadrant or axis in which the following points lie .

$(-4,0)$ $(5,-1)$ $(-1,-3)$ $(-3, 7)$

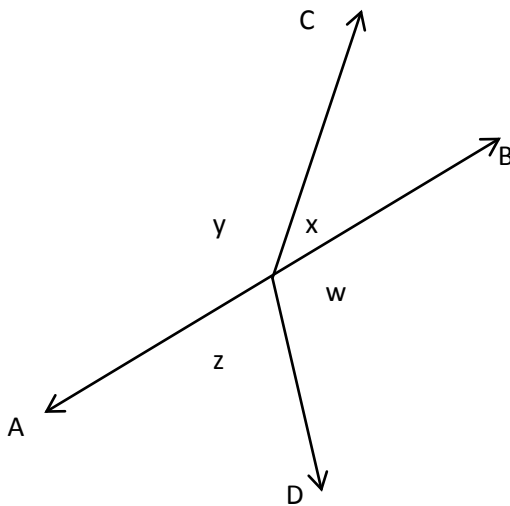
- 9.. Evaluate using an identity : 104×96
10. Visualize 2.435 on a number line by using successive magnification.

11. Simplify : a) $(\sqrt{5} - \sqrt{2})(\sqrt{5} + \sqrt{2})$ b) $(2 + \sqrt{2})^2$

12. state remainder theorem and use this to find the remainder when $x^3 - ax + 6x - a$ is divided by $x - a$.

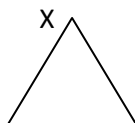
13. Factorize : $2x^2 + y^2 + 8z^2 + 2\sqrt{2}xy - 4\sqrt{2}yz - 8xz$.

14. If $x+y=w+z$. Prove AOB is a line.



15. Prove that vertically opposite angles are equal .

16. In the following figure , $\angle x = 62^\circ$, $\angle XYZ = 54^\circ$. If YO and ZO are the bisectors of $\angle XYZ$ and $\angle XZY$ respectively of $\triangle XYZ$, find $\angle OZY$ and $\angle YOZ$.



Y

Z

17. If , A,B,C,D are 4 points in a line such that $AC = BD$, prove that $AB = CD$.

18. If $\frac{3+\sqrt{5}}{3-\sqrt{5}} = a + b\sqrt{5}$.Find a and b.

19.Represent $\sqrt{9.3}$ on the number line .

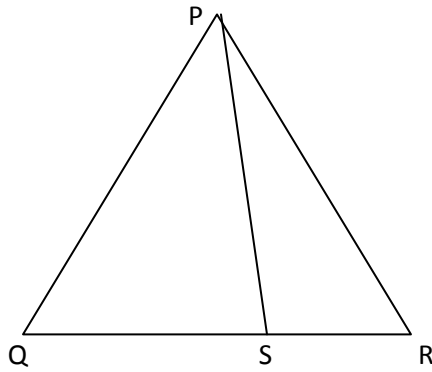
20. Factorize : $x^3 + 13x^2 + 32x + 20$.

21.Factorize : a) $6x^2 + 5x - 6$ b) $x^2 - \frac{y^2}{100}$

22. Write in expanded form : a) $(x - \frac{2y}{3})^3$

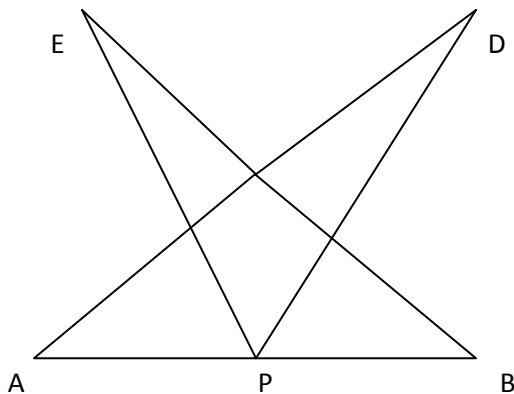
b) $(3a - 7b - c)^2$

23.In fig. $PR > PQ$ and PS bisects $\angle QPR$. prove that , $\angle PSR > \angle PSQ$.



24.AB is a line segment and P is its mid point. D and E are points on the same side of AB such that $\angle BAD = \angle ABE$ and $\angle EPA = \angle DPB$.

Show that i) $\triangle DAP \cong \triangle EBP$ ii) $AD = BE$



25. Prove that sum of the angles of a triangle is 180°

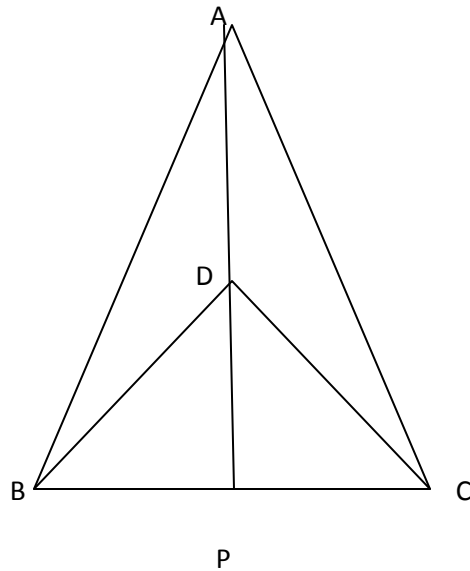
26. Prove that a diagonal divides a parallelogram into 2 congruent triangles .

27. $\triangle ABC$ and $\triangle DBC$ are 2 isosceles triangles on the same base BC and vertices A and D are on the same side of BC .If AD is extended to intersect BC at P show that i) $\triangle ABD \cong \triangle ACD$

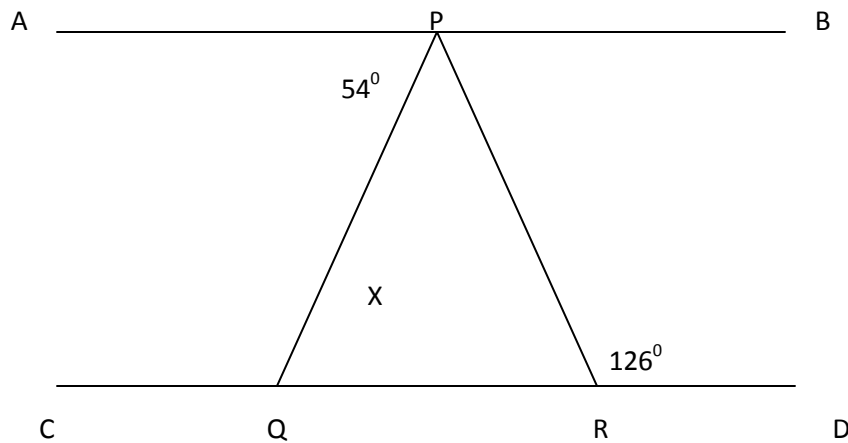
ii) $\triangle ABP \cong \triangle ACP$

iii) AP bisects $\angle A$ as well as $\angle D$

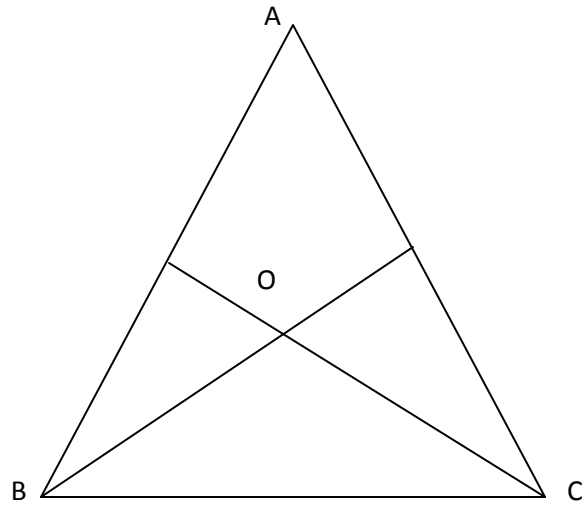
iv) AP is the perpendicular bisector of BC



28. In fig $AB \parallel CD$.If $\angle APQ = 54^\circ$ and $\angle PRD = 126^\circ$.Find x and y .



29. In an isosceles $\triangle ABC$,with $AB = AC$ the bisector of $\angle B$ and $\angle C$ intersect each other at O . Show that i) $OB = OC$ ii) AO bisects $\angle A$



30. Plot the points on