MODERN PUBLIC SCHOOL, SEC-37, FBD

CLASS-IX , SUBJECT - MATHEMATICS

Topic SUMMER HOLIDAY HOME WORK Date (2017-18)

Q.1. Find five rational numbers lying between (-2) and (-3).

Q.2. If $\frac{\sqrt{2}+\sqrt{3}}{3\sqrt{2}-2\sqrt{3}} = (a+b\sqrt{6})$ find the values of a and b.

Q.3. If $x = 1-\sqrt{2}$, then find the value of $\left(x-\frac{1}{x}\right)^3$.

Q4. Prove that $\frac{a^{-1}}{a^{-1}+b^{-1}} + \frac{a^{-1}}{a^{-1}-b^{-1}} = \frac{2b^2}{b^2-a^2}$

Q5. Factorise the following :-

a) $x^2+\frac{1}{x^2}-2-3x+\frac{3}{x}$ (b) $24\sqrt{3}\,x^3-125y^3$

Q.6. If $x^2+\frac{1}{x^2} = 14$, find $x^3+\frac{1}{x^3}$

Q.7. Find $y^2+\frac{1}{y^2}$ and $y^4+\frac{1}{y^4}$, if $y-\frac{1}{y} = 9$

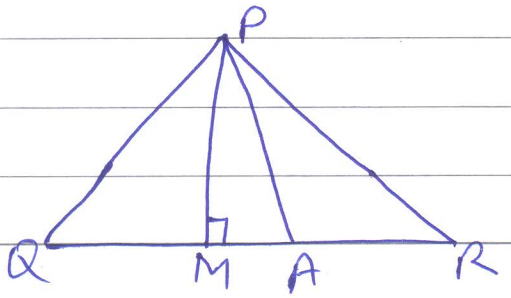
Q.8. If $x = (2+\sqrt{5})^{\frac{1}{2}} + (2-\sqrt{5})^{1/2}$ and $y = (2+\sqrt{5})^{\frac{1}{2}} - (2-\sqrt{5})^{\frac{1}{2}}$ evaluate x^2+y^2.

Q9. Plot the points $(1,1)$, $(2,-2)$ and $(-1,-2)$ and check whether they are collinear or not. If not collinear, then determine the area of the figure.

Q.10. The price of 2 pens and 5 pencils is ₹60. Draw the graph after forming a linear equation.

Q11. State and prove angle sum property of a triangle.

Q.12. In the given fig. $\angle Q > \angle R$, PA is the bisector of $\angle QPR$ and $PM \perp QR$. Prove that $\angle APM = \frac{1}{2}(\angle Q - \angle R)$.



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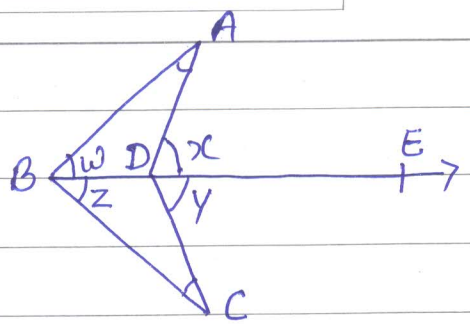
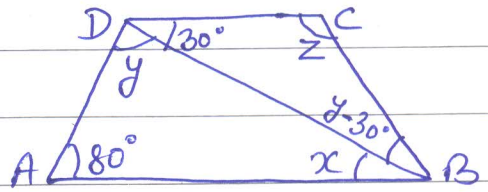
13) In the given fig. prove that

$\angle ADC = \angle A + \angle B + \angle C$



14.) Bisectors of interior $\angle B$ and exterior $\angle ACD$ of a $\triangle ABC$ intersect at the point T. Prove that $\angle BTC = \frac{1}{2}\angle BAC$.

15.) In the given figure, if $AB \| DC$, $\angle BDC = 30^\circ$ and $\angle BAD = 80^\circ$ then find $\angle x, \angle y, \angle z$.



PROJECT WORK :- State and prove angle sum property of a triangle on A-4 size sheet.

NOTE :->

- Revise full syllabus done in class.
- Holiday Home work will be checked only on 3rd, 4th and 5th July '17.