CLASS: IX

SUB: MATHS

WORK SHEET OF CHAPTER – 1, 2

1. Find three rational and three irrational numbers between $\frac{1}{12}$ and $\frac{1}{15}$.
2. Convert the following into $\frac{p}{q}$ form.
   a) $0.1\overline{6}$ b) $12.\overline{46}$ c) $1.29\overline{1}$ d) $0.\overline{123}$
3. Rationalise :– a) $\frac{1}{\sqrt{5}-\sqrt{4}}$ b) $\frac{5\sqrt{3}+3\sqrt{5}}{5\sqrt{3}-3\sqrt{5}}$
4. Find the value of 'a' and 'b' If $\frac{5+2\sqrt{3}}{7+4\sqrt{3}} = a+b\sqrt{3}$
5. Prove that $\frac{1}{2+\sqrt{3}} + \frac{2}{\sqrt{5}-\sqrt{3}} + \frac{1}{2-\sqrt{5}} = 0$
6. If $(27)^x = \frac{9}{3^x}$ then find the value of x.
7. If $\left(\frac{3}{2}\right)^x \times \left(\frac{2}{3}\right)^{2x} = \frac{8}{27}$ find the value of x.
8. Show that $(x^{a-b})^{a+b} \times (x^{b-c})^{b+c} \times (x^{c-a})^{c+a} = 1$
9. If $2^{9m} \div 2^{2m} = \sqrt[7]{(2)^{14}}$ then find the value of m.
10. Verify that whether -2 and 3 are the zeros of the polynomial $x^2 - x - 6$
11. If $(x-a)$ is a factor of $4x^2 - mx - na$.
    Prove that $a = \frac{m+n}{4}$
12. If $P(x) = x^3 - 4x^2 + x + 6$ then show that $P(3) = 0$ and hence factorise $P(x)$.
13. Factorise $\sqrt{2}x^2 + 3x + \sqrt{2}$

14. If the polynomials $(2x^3+kx^2+3x-5)$ and $(x^3+x^2-2x+2k)$ leave the same remainder, when divided by $(x-3)$ then find the value of k.

15. Factorise:- $9z^2-63y+y^2$

16. Simplify, using suitable identity
$(a-b-1)(a^2+b^2+1+ab-b+a)$

17. If $a+b=12$ and $ab=27$ find the value of a^3+b^3

18. If $x-\frac{1}{x}=2$ find the value of $x^4+\frac{1}{x^4}$

19. Factorise $4a^2+9b^2+16c^2+12ab-24bc-16ca$

20. Factorise $64x^3-27y^3-144x^2y+108xy^2$

21. If $\frac{x}{y}+\frac{y}{x}=-1$ then find the value of x^3-y^3.

22. Find the degree of x^2 in $P(x)=x(x-2)-3x^2+2x-1$

23. Factorise $ab+bc+ax+cx$

24. Find the zero of the polynomial of $P(x): (x-2)^2-(x+2)^2$

25. Factorise $a^{12}y^4-a^4y^{12}$

CLASS:- IX WORK SHEET

SUB:- MATHS OF CHAPTER 3,4

1. In which quadrant "OR" axis the following point lie?
   $(-5,3)$, $(0,-4)$, $(2,-4)$, $(3,7)$, $(-2,0)$, $(-6,-3)$
   Also, plot these points on a graph.
2. Plot the points $A(-3,-3)$, $B(3,-3)$ and find the length of line segment AB
3. Plot the points $(3,2)$, $(-2,2)$, $(-2,-2)$ and $(3,-2)$ in the cartesian plane. Join these points in order and name the figure so formed.
4. Find the maximum number of points on the X-axis and Y-axis.
5. 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 so obtained.
6. Find any four solutions of the equation $2x+3y=2$
7. Draw the graph of the linear equation in two variables : $3x-2y=1$
8. Find the value of 'k' if $(1,-1)$ is a solution of the equation $3x-ky=8$
9. Write linear equation such that each point on its graph has ordinate 3 times its abscissa.
10. The cost of a shirt of a particular brand is ₹ 1000. Write a linear equation; when the cost of x shirts is ₹ y. Draw the graph of this equation and find the cost of 12 such shirts from the graph.

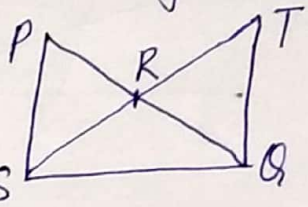
CLASS:- IX
SUB: Maths.

WORK SHEET OF
CHAPTER 5 and 6

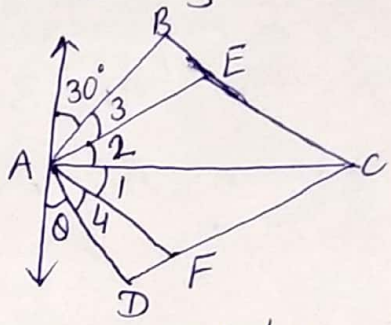
1. Write 4th axiom and 4th postulate given by Euclids.

2. If $x+y=10$ and $x=z$ then show that $z+y=10$.

3. From the figure $PR=RS$ and $RQ=RT$ Show that $PQ=ST$ and write the Euclid's axiom to support this.

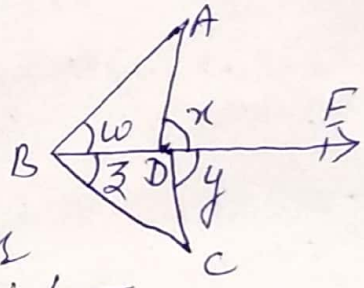


4. From the figure $\angle 2=\angle 1$ and $\angle 3=\angle 4$ find $\angle Q$



5. John is of the same age as Mohan. Ram is also the same age as Mohan. So, what can you say about the ages of John and Ram. Also state the Euclid's axiom that illustrates the relative ages of John and Ram.

6. Prove that $\angle ADC=\angle A+\angle B+\angle C$



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

8. The bisectors of $\angle ABC$ and $\angle BCA$ intersect each other at point O. If $\angle BOC=100°$ then find $\angle A$

9. Find the measure of the angle which is complement of itself.

10. If $AC\perp CF$ and $\angle A:\angle B:\angle C=5:3:2$ of $\triangle ABC$ then find the value of $\angle ECD$