

BASIC FUNDAMENTALS FOR (CLASS VIII)

ALL THE STUDENTS MUST UNDERSTAND LEARN THE GIVEN THEORY AS REVISION OF PREVIOUS KNOWLEDGE

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 (Teacher's Signature)

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1 .LINE: A line is a straight path that extends infinitely in both directions. It's length cannot be measured.

It can only be represented on a plane.

2 . POINT: Point is a mark of location .It has no length ,breadth and height .It is marked in capital letters .

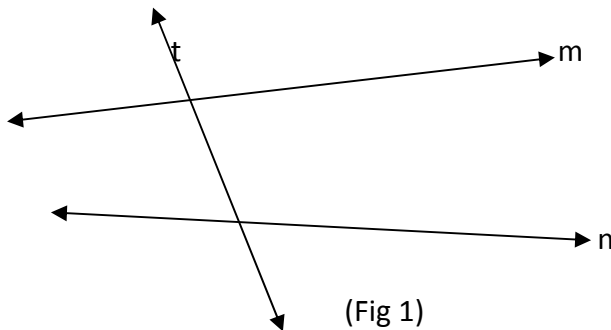
For ex A,B,C.It is represented in small letters.like l,m,n,p,q,r,tetc



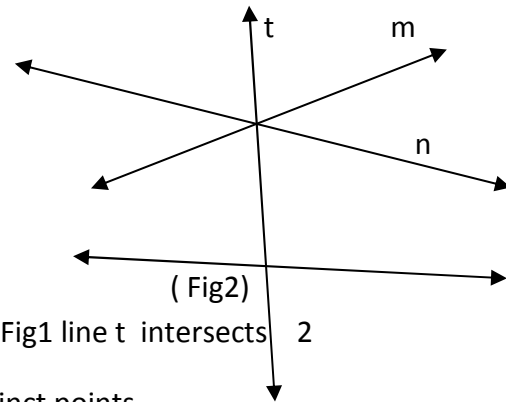
3. LINE SEGMENT: It is a straight path joining two fixed points .It has a fixed length. It is represented in capital letters. \overline{AB}

4. RAY:It is a straight path having one end fixed and the other end extending infinitely. It does not have a definite length . \overrightarrow{AB} Or \overleftarrow{AB}

5. TRANSVERSAL: A line that intersects two or more different lines at distinct points.



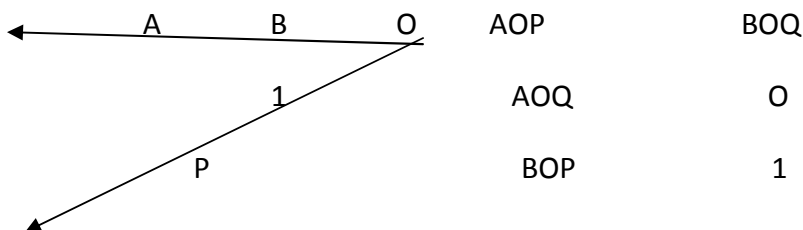
(Fig 1)



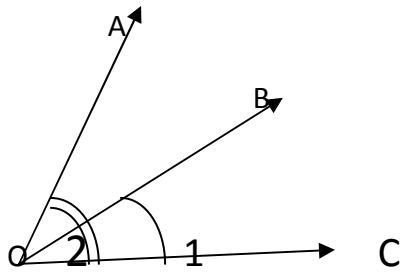
(Fig2)

In fig1 line t is a transversal but in fig2 line t is not a transversal. Because in Fig1 line t intersects line m and n at 2 points .But in fig2 line t intersects three lines at only 2 distinct points.

6. ANGLE :Two rays meet at a point to form an angle .There are many ways to name an angle.

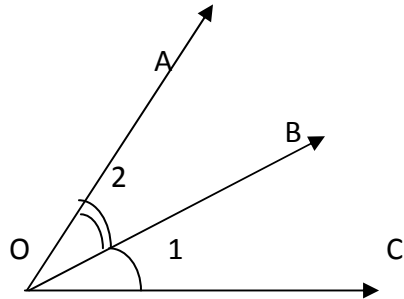


7. ADJACENT ANGLES: Two angles are said to adjacent if a)they have a common vertex, b) they have a common arm c) and the two non common arms lie on the opposite side of the common arm.



ANGLES	ARMS	VERTEX
1	OC, OB	O
2	OC, OA	O

Here the non common arms lie on the same side Of the common arm OC. Therefore they are not Adjacent Angles

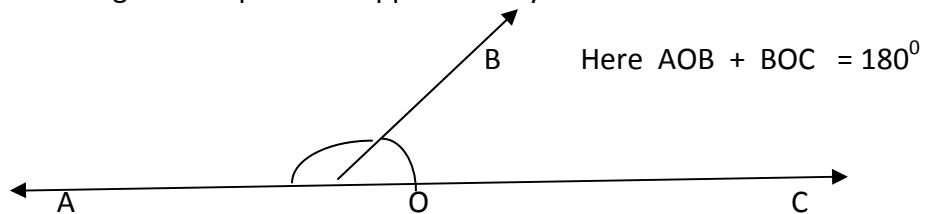


ANGLES	ARMS	VERTEX
1	OB, OC	O
2	OA, OB	O

Here the two non common arms OA, OC lies on the opposite side of the common arm OB.

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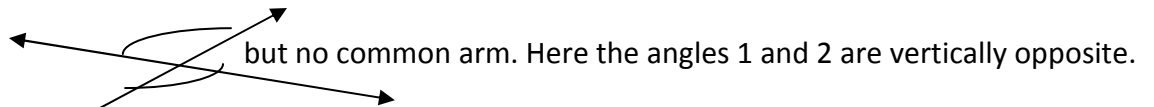
8. LINEAR PAIR: Two adjacent angles are said to form a linear pair, if their non common arms form a straight line. Angles forming a linear pair are supplementary.



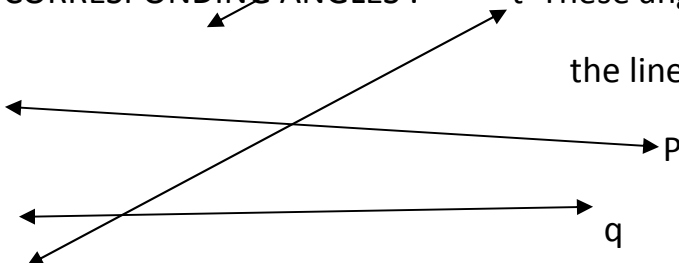
9. COMPLEMENTARY ANGLES : Two angles are said to be complementary if their sum is 90°

10. SUPPLEMENTARY ANGLES : Two angles are said to be supplementary if their sum is 180°

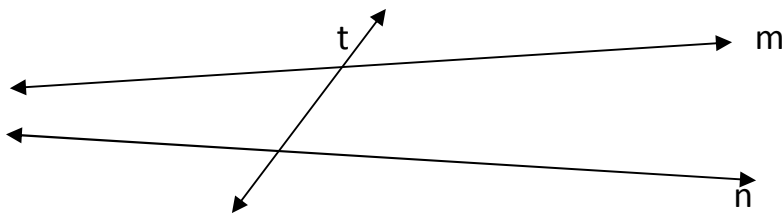
11. VERTICALLY OPPOSITE ANGLES : Two angles formed by two intersecting lines, having a common vertex



12. CORRESPONDING ANGLES : These angles lie on the same side of Transversal & the lines. The Corresponding angles are :



13. ALTERNATE ANGLES: These angles lie on the opposite side of the Transversal



and the lines. The Alternate angles are :

14. NATURAL NUMBERS (COUNTING NUMBERS) : Numbers starting from 1,2,3,4..... .The

Smallest natural number is 1. We do not have the largest natural number.

15. WHOLE NUMBERS : Collection of Natural numbers along with zero form the system of Whole Numbers. Ex 0,1,2,3... .The smallest Whole Number is 0. We do not have the greatest Whole Number. All Natural Numbers are whole numbers .Only Whole Number that is not a Natural Number is 0.

16. INTEGERS: Collection of Natural Numbers ,their opposites including zero form the system of Integers .Ex.....,-5,-4,-3,-2,-1,0,1,2,3,4,5......In numerical of Integers, Integers of same sign gets added up ,while of opposite sign get subtracted. Ex : $23 - 7 - 32 + 15$

$$= 23 + 15 - 7 - 32$$

$$= 38 - 39$$

$$= -1$$

17) Ratio of two Natural Numbers is called a Fraction .It is a part of whole.

a) Like and Unlike fractions: Fractions having the same denominator are called Like

Fractions. Ex $\frac{3}{5}, \frac{4}{5}$ are like as their denominator is 5. Unlike fractions do not have the same

denominator. Ex $\frac{5}{9}, \frac{4}{5}$ are Unlike as their Denominators are not same

b) Proper and improper fractions: Fractions in which the Numerator is

smaller than the Denominator is called a Proper Fraction . Ex $\frac{2}{5}, \frac{5}{7}$.Fractions in which the

Numerator is greater than the Denominator are called Improper Fractions . Ex $\frac{7}{3}, \frac{35}{13}$

c) Mixed number : A number formed by the combination of a whole number and a Proper

Fraction is called a Mixed Number . Ex $3\frac{3}{5}, 5\frac{1}{5}$

d) Unit fractions : Fractions having Numerator 1 are called Unit Fractions .Ex $\frac{1}{3}, \frac{1}{4}, \frac{1}{5}$

e) IMPORTANT RULE: Only like fractions can be added or subtracted. Unlike fractions cannot be added or subtracted. They have to be first converted into Like fractions by taking out the LCM, then added or subtracted.

18. RATIONAL NUMBER: A number in the form of $\frac{p}{q}$, where p and q are Integers, and $q \neq 0$.

19. DISTRIBUTIVE LAW : $ax(b + c) = a \times b + a \times c$

$$a \times (b - c) = a \times b - a \times c$$

20. INTEREST (S.I or C.I): The extra money given by the Bank at the end of time period.

21. RATE OF INTEREST(R): This is the extra money given by the bank for every Rs100 deposited for 1 year

22. RULES OF PROFIT AND LOSS :

a) PROFIT = SP – CP (REST ALL THE FORMULAES FOR SP AND CP CAN BE FOUND BY TRANSPOSING THE TERMS FROM ONE SIDE OF EQUATION TO OTHER)

b) LOSS = CP – SP

c) PROFIT % = $\frac{PROFIT}{CP} \times 100$

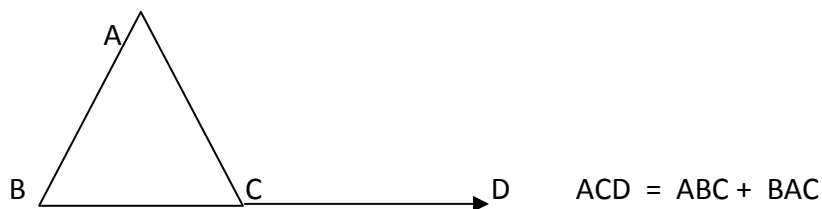
d) LOSS % = $\frac{LOSS}{CP} \times 100$

23. TRIANGLE AND IT'S PROPERTIES

a) In a triangle the angle opposite to equal sides are also equal.

b) In a triangle the sides opposite to equal angles are also equal.

c) Exterior angle of a Triangle is equal to the sum of the interior opposite angles.



d) ANGLE SUM PROPERTY: In a triangle sum of the three angles is 180° is known by "ANGLE SUM PROPERTY".

e) TRIANGLE INEQUALITY: In a triangle the sum of any two sides is always greater than the third side.

f) PYTHAGORAS THEOREM: In a right Triangle, the square of the hypotenuse is equal to the sum of the square of the other two sides. (In a right triangle the side opposite to right angle is called hypotenuse. It is the longest side in a right triangle)

g) CONVERSE OF PYTHAGORAS THEOREM: In a triangle, if square of one side is equal to the sum of the square of the other two sides, then it is a right triangle, with the angle opposite to the first side being a right angle.

POINTS OF INTERSECTION OF LINES

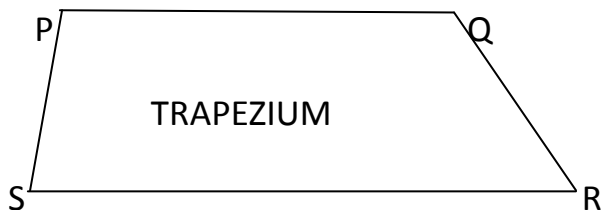
h) CENTROID: In a triangle, the point of intersection of medians is called centroid. Centroid divides a median in the ratio 2:1.

i) ORTHOCENTER: In a triangle, the point of intersection of altitudes is called orthocenter.

j) INCENTER: In a triangle the point of intersection of angle bisectors is called Incenter. Incenter is equidistant from sides of a triangle.

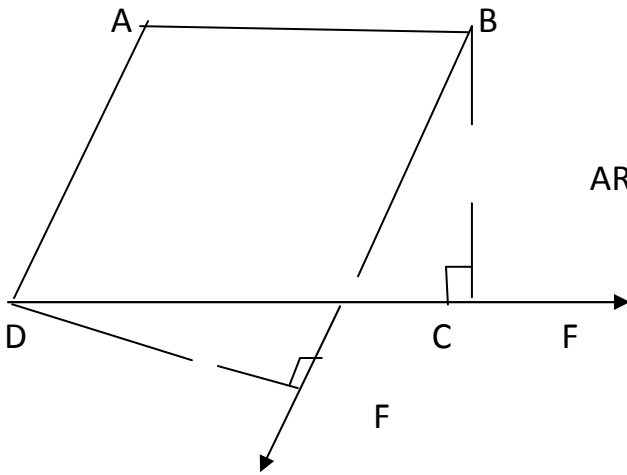
k) CIRCUMCENTER: The point of intersection of perpendicular bisectors of sides of a triangle is called Circumcenter. Circumcenter is equidistant from all the three vertices of the triangle.

24. VARIOUS TYPES OF QUADRILATERALS: a) TRAPEZIUM: A quadrilateral in which one pair of opposite sides are parallel. b) ISOSCELES TRAPEZIUM: A Trapezium in which the non-parallel sides are equal in length.



AREA OF TRAPEZIUM = $\frac{1}{2} \times (\text{Sum of parallel sides}) \times \text{perpendicular distance between them}$

b) PARALLELOGRAM: A quadrilateral in which opposite sides are parallel. In a parallelogram, diagonals bisect each other. Opposite angles are equal. Parallelogram in which one angle is 90° is a rectangle. AREA = BASE X ALTITUDE

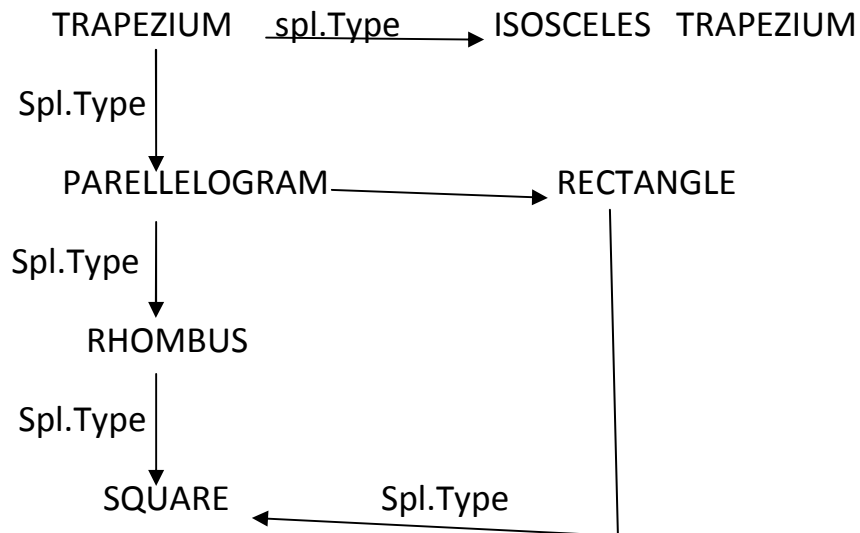


AREA OF A PARELLOGRAM = BASE X ALTITUDE

$$= CD \times BF = BC \times DF$$

c) RHOMBUS : Parellelogram in which adjacent sides are equal in length .Diagonals of a Rhombus bisect each other perpendicularly. Rhombus is a special type of parallelogram. Rhombus in which one angle is 90° is a Square.

$$\text{AREA OF A RHOMBUS} = \frac{1}{2} \times d_1 \times d_2 = \text{BASE X ALTITUDE}$$



25. STATISTICS: a) MEAN (AVERAGES) = $\frac{\text{SUM OF ALL OBSERVATIONS}}{\text{TOTAL NUMBER OF OBSERVATIONS}}$

b) MEDIAN : Arrange the data in ascending order .If n=odd Then Median = $(\frac{n+1}{2})$ th observation

& if n= even, Then Median = $\frac{1}{2} (\frac{n}{2}$ th Obsrv + $\frac{n+1}{2}$ th Obsrv)

c) MODE: Arrange the data in ascending order .The data that comes maximum number of times is the modal value



DAV Public School, Gandhi Nagar (CCL), Ranchi

ASSIGNMENT ON COMPOUND INTEREST CLASS 8 (WORK SHEET 3)

Q1) Find the C.I. on Rs 15625 for 9 months, at 16% p.a, compounded quarterly ?

Q2) Find the C.I. on Rs 10000 for 1 year at 20% p.a., compounded quarterly ?

Q3) Ramesh deposited Rs 7500 in a bank which pays him 12% interest p.a. compounded quarterly. What is the amount which he receives after 9 months?

Q4) What will Rs 125000 amount to at the rate of 6%, if the interest is calculated after every 4 months?

Q5) Shyam deposited in a bank Rs 7500 for 6 months at the rate of 8% interest compounded quarterly. Find the amount he received after 6 months?

TEACHER'S SIGNATURE

PARENT'S SIGNATURE

WORKSHEET FOR ASSESSMENT(CLASS VIII)

TOPIC: LINEAR EQUATIONS ASSESSMENT

Solve the following

1. $(x + 2)(x + 3) + (x - 3)(x - 2) - 2x(x + 1) = 0$

2. $\frac{x}{2} + \frac{x}{3} + \frac{x}{4} = 13$

3. $\frac{6x+1}{2} + 1 = \frac{7x-3}{3}$

4. $\frac{5x}{3} - \frac{(x-1)}{4} = \frac{x-3}{5}$

5. $0.18(5x - 4) = 0.5x + 0.8$

6. $\frac{x+b}{a-b} = \frac{x-b}{a+b}$

7. $\frac{(X+2)(2X-3) - 2X^2 + 6}{X-5} = 2$

8. Find the positive value of x for :

$$\frac{x^2 - 9}{5 + x^2} = -\frac{5}{9}$$

9. A number is 56 greater than the average of its third, quarter and one twelfth. Find the number

10. Divide 34 into two parts in such a way that $(\frac{4}{7})$ th of one part is equal to $(\frac{2}{5})$ th of the other.

11. After 12 years I shall be 3 times as old as I was 4 years ago. Find my present age.

12. My age is four times the difference of my age after four years and my age three years back. How old am I?

13. How much pure alcohol be added to 400 ml of a 15% solution to make its strength 32%?

WORKSHEET FOR ASSESMENT(CLASS VIII)

TOPIC : POLYNOMIALS

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(Teacher's Signature)

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1) Divide: $10x^4 + 17x^3 - 62x^2 + 11x - 6$ by $x^2 - 4x + 3$

2) Show that $3y^2 + 5$ is a factor of $6y^5 + 16y^4 + 16y^3 + 4y^2 + 10y - 35$

3) Divide $3y^5 + 6y^4 + 6y^3 + 7y^2 + 8y + 9$ by $3y^3 + 1$

4) Divide $3y^4 - 3y^3 - 4y^2 - 4y$ by $y^2 - 2y$

5) Divide $2y^3 + 10y^4 + 6y^3 + y^2 + 5y + 3$ by $2y^3 + 1$

6) Divide $x^4 - 2x^3 + 2x^2 + x + 4$ by $x^2 + x + 1$

7) $m^3 - 14m^2 + 37m - 26$ by $m^2 - 12m + 13$

8) $x^4 + x^2 + 1$ by $x^2 + x + 1$

9) $x^5 + x^4 + x^3 + x^2 + x + 1$ by $x^3 + 1$

10) $6x^3 + 11x^2 - 39x - 65$ by $3x^2 + 13x + 13$

11) Divide $15y^4 + 16y^3 + \frac{10}{3}y - 9y^2 - 6$ by $3y - 2$

12) Check whether $2x^2 - x + 3$ is a factor of $6x^5 - x^4 + 4x^3 - 5x^2 - x - 15$

13) Find the value of a , if $x + 2$ is a factor of $4x^4 + 2x^3 - 3x^2 + 8x + 5a$

14) What must be added to $x^4 + 2x^3 - 2x^2 + x - 1$, so that the resulting polynomial is exactly divisible by $x^2 + 2x - 3$

15) $16x^4 + 12x^3 - 10x^2 + 8x + 20$ by $4x - 3$

16) $12x^3 - 8x^2 - 6x + 10$ by $3x - 2$

17) $8y^3 - 6y^2 + 4y - 1$ by $4y + 2$

18) $6x^3 - x^2 - 10x - 3$ by $(2x - 3)$

DIVIDE THE FOLLOWING POLYNOMIALS BY FACTORISATION

19) $a^4 - b^4$ by $a - b$

20) $a^{12} + a^6 b^6 + b^{12}$ by $a^6 - a^3 b^3 + b^6$

$$21) x^{4a} + x^{2a}y^{2b} + y^{4b}$$

$$\text{by } x^{2a} + x^ay^b + y^{2b}$$

$$22) acx^2 + (bc + ad)x + bd \text{ by } (ax + b)$$

$$23) (a^2 + 2ab + b^2) - (a^2 + 2ac + c^2)$$

$$\text{by } 2a + b + c$$

$$24) \frac{1}{4}x^2 - \frac{1}{2}x - 12 \text{ by } \frac{1}{2}x - 4$$