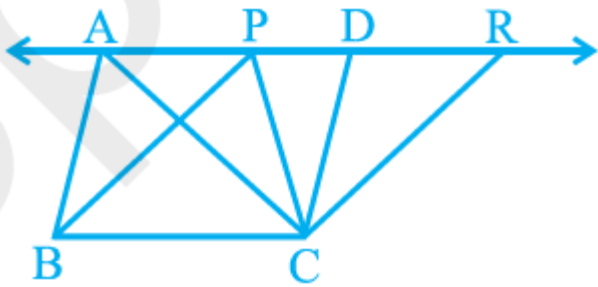
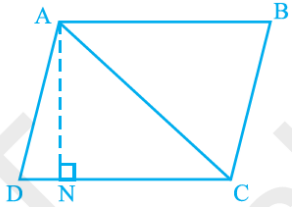


LESSON PLAN CLASS 9

Class	Subject	Time slot	Lesson	Topic P6/ P7
IX	Mathematics	35 +35 Mins 2 Pds	Areas of Parallelograms and Triangles	☐ Triangles on the same Base and between the same Parallels ☐ Ex 9.3
Expected Learning Outcome: Learners will be able to 1) Provethat two triangles having the same base or equal bases and lying between the same parallels are equal in area and vice-versa 2) Applythe concept to solve the problems				
Expected skill development: 1) Procedural thinking 2) Communicatingusing mathematical terminology relating to geometry 3) Representation skill while drawing the figure as per the requirement of the question 4) Developing connections between different properties of Parallelogram and Triangles				

FLOW OF LESSON WITH RESPECT TO TIME(Introduction/ warm-up, Content, Think Line, Closure)

Pedagogy	Content
(10 mins) Warm Up (Individual work)+ Black Board Demonstration by learners	In continuation of the activitydone in previous exercise,  Learners will conclude : Theorem 9.2 : Two triangles on the same base (or equal bases) and between the same parallels are equal in area
(50 mins) Demonstration by Facilitator on Board	(see Fig. 9.20). Let AN ⊥ DC. Note that  Δ ADC≅ CBA (why?) So, ar (ADC) = ar (CBA) Therefore, ar (ADC) = $\frac{1}{2}$ ar (ABCD) $= \frac{1}{2}$ (DC × AN) What is the formula to find area of a triangle? In otherwords,areaofatriangleishalfthe product ofitsbase(or anyside)and

the corresponding altitude (or height).

From this formula, you can see that two triangles with same base (or equal bases) and equal areas will have equal corresponding altitudes.

For having equal corresponding altitudes, the triangles must lie between the same parallels.

From this, you arrive at the following converse of Theorem 9.2.

Theorem 9.3: *Two triangles having the same base (or equal bases) and equal areas lie between the same parallels*

5. D, E and F are respectively the mid-points of the sides BC, CA and AB of a $\triangle ABC$.
Show that

(i) BDEF is a parallelogram.

$$(ii) \ar(DEF) = \frac{1}{4} \ar(ABC)$$

$$\text{(iii) ar (BDEF)} = \frac{1}{2} \text{ ar (ABC)}$$

8. XY is a line parallel to side BC of a triangle ABC. If $BE \parallel AC$ and $CF \parallel AB$ meet XY at E and F respectively, show that

$$\text{ar}(\text{ABE}) = \text{ar}(\text{ACF})$$

9. The side AB of a parallelogram ABCD is produced to any point P. A line through A and parallel to CP meets CB produced at Q and then parallelogram PBQR is completed (see Fig. 9.26). Show that $\text{ar}(\text{ABCD}) = \text{ar}(\text{PBQR})$.

[Hint : Join AC and PQ. Now compare ar (ACQ) and ar (APQ).]

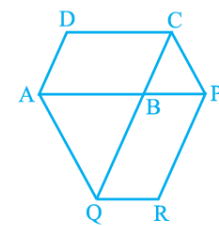


Fig. 9.26

ABCD is a trapezium with $AB \parallel DC$. A line parallel to AC intersects AB at X and BC at Y. Prove that $\text{ar}(\triangle ADX) = \text{ar}(\triangle ACY)$.

16. In Fig.9.29, $\text{ar}(\text{DRC}) = \text{ar}(\text{DPC})$ and $\text{ar}(\text{BDP}) = \text{ar}(\text{ARC})$. Show that both the quadrilaterals ABCD and DCPR are trapeziums.

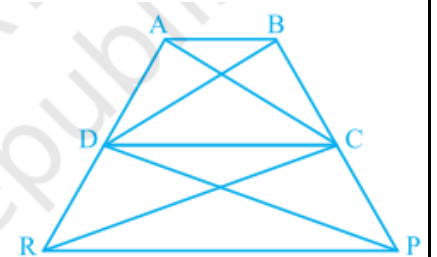
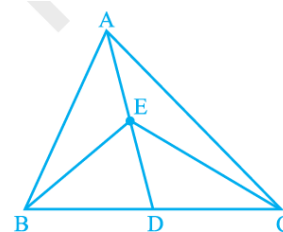


Fig. 9.29

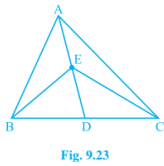
(10 mins) In class Exercise: Closure

In Fig.9.23, E is any point on median AD of a $\square ABC$. Show that $\text{ar}(\triangle ABE) = \text{ar}(\triangle ACE)$.



Proposed Questions(must include the questions asked in the classroom and the ones given as class-work in the

In Fig.9.23, E is any point on median AD of a ΔABC . Show that $\text{ar} (ABE) = \text{ar} (ACE)$.

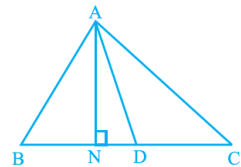


- Evaluation/ Assessment: Notebook work, Observation, Black Board Assessment,

Learners on the way

Define median of the triangle

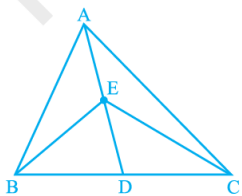
In a ΔABC AD is the median .
Prove that $\text{ar} \Delta ABD = \text{ar} \Delta ACD$



Advanced Learner

In Fig.9.23, E is any point on median AD of a

ΔABC . Show that $\text{ar} (ABE) = \text{ar} (ACE)$.



Materials needed/ Resources:- Chalk, Duster, NCERT Text Book

Common Misconceptions:

Median of a triangle divides it into two congruent triangle, therefore they are equal.

Addressing the misconceptions:

Median divides the triangle into two triangles of equal bases and they lie between same parallels, therefore they are equal in area.

HomeAssignments: Do Q2,Q3,Q4,Q6, Q8, Q11,12,14 and 15 of Ex–9.3 of NCERT Text Book Class 9.