

PM SHRI KENDRIYA VIDYALAYA NO.3 AFS-2 JAMNAGAR

Subject: Mathematics

Holiday homework for Autumn Break

Class – 9th

1. Complete your fair notebook upto chapter no. 7.
2. Solve question paper of PT-2 exam in fair notebook.
3. Complete your portfolio of Mathematics as per the format provided. It must be handwritten.
4. Complete lab activities no. 5 and 6 in practical notebook.

Portfolio

Subject: Mathematics

Class:- 9

Session:-2024-25

Name : _____

School: _____

Section : _____

Roll No: _____

Acknowledgement

I would like to express my special thanks of gratitude to my Mathematics teacher _____ as well as our school Principal _____ who gave me the excellent opportunity to do this portfolio assignments, which also helped me in doing a lot of Research

I am really thankful to them. Secondly, I would also like to thank my parents and friends who helped me a lot in finishing this Portfolio within the limited time. Just because of them I was able to complete it.

I am making this Portfolio not only for marks but to also to improve my knowledge.

Thanks again to all who helped me.

Name of student .

Certificate

*This is to certify that the Portfolio is submitted by the -----
----- under the supervision of -----
----- (your teacher's name).....in the academic year 2024-25*

Sign of teacher

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S.No	Activity / Assignment	Page Number	Submitted on	Marks (5)	Teacher Sign
1	<i>Assignment no. 1 Write all the important formulas of each chapter.</i>				
2	<i>Assignment no. 2 Solve Sample question paper.</i>				

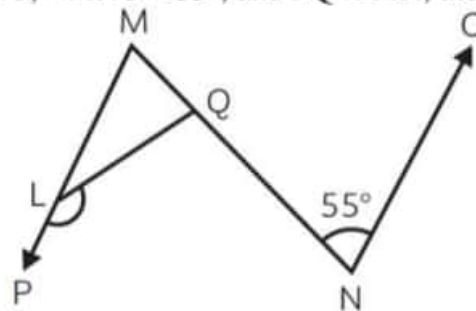
General Instructions:

- (i). All questions are compulsory.
- (ii). This question paper contains 20 questions divided into five Sections A, B, C, D and E.
- (iii). **Section A** comprises of 10 MCQs of 1 mark each. **Section B** comprises of 4 questions of 2 marks each. **Section C** comprises of 3 questions of 3 marks each. **Section D** comprises of 1 question of 5 marks each and **Section E** comprises of 2 Case Study Based Questions of 4 marks each.
- (iv). There is no overall choice.
- (v). Use of Calculators is not permitted

SECTION – A

Questions 1 to 10 carry 1 mark each.

1. In the given figure, if $PM \parallel NO$, $\angle MNO = 55^\circ$, and $LQ \perp MN$, then $\angle PLQ$ is equal to:



- (a) 110° (b) 125° (c) 145° (d) 115°
2. The point whose ordinate is 9 and which lies on y-axis is:
(a) (9, 0) (b) (0, 9) (c) (1, 9) (d) (0 –9)
3. Ram shared his location in coordinates as (4, 3) with his friend. What is the abscissa of in shared coordinates?
(a) –4 (b) 4 (c) 3 (d) –3
4. It is known that if $P = Q$ and $X = Y$ then, $P - X = Q - Y$. The Euclid's axiom that illustrates this statement is:
(a) first axiom (b) second axiom (c) third axiom (d) fourth axiom
5. Which of the following statement is false?
(a) A straight line may be drawn from any one point to any other point.
(b) A terminated line cannot be produced indefinitely.
(c) A circle can be drawn with any center and any radius.
(d) All right angles are equals to one another.
6. Jitu was given a riddle by Pragya who stated that an angle is 24° less than its complementary angle. The angle's measure is:
(a) 36° (b) 33° (c) 66° (d) 57°
7. John is of the same age as Mohan. Ram is also of the same age as Mohan. Which Euclid's axiom illustrates the relative ages of John and Ram?
(a) first axiom (b) second axiom (c) third axiom (d) fourth axiom

8. Find the coordinates of the vertices of a rectangle whose length and breadth are 8 and 4 units respectively, one vertex is at the origin, the longer side lies on the y-axis and one of the vertices lies in the second quadrant.
- (a) $(-4, 8), (0, 8), (0, 0), (-4, 0)$
 (b) $(-4, -8), (0, -8), (0, 0), (-4, 0)$
 (c) $(4, 8), (0, 8), (0, 0), (4, 0)$
 (d) $(-4, 8), (0, -8), (0, 0), (-4, 0)$

In the following questions 9 and 10, a statement of assertion (A) is followed by a statement of Reason (R). Choose the correct answer out of the following choices.

- (a) Both A and R are true and R is the correct explanation of A.
 (b) Both A and R are true but R is not the correct explanation of A.
 (c) A is true but R is false.
 (d) A is false but R is true.

9. **Assertion (A):** Point $P(1, -2)$ lies in IV quadrant.

Reason (R): In the Cartesian system, x and y coordinates of IV quadrant are positive and negative respectively.

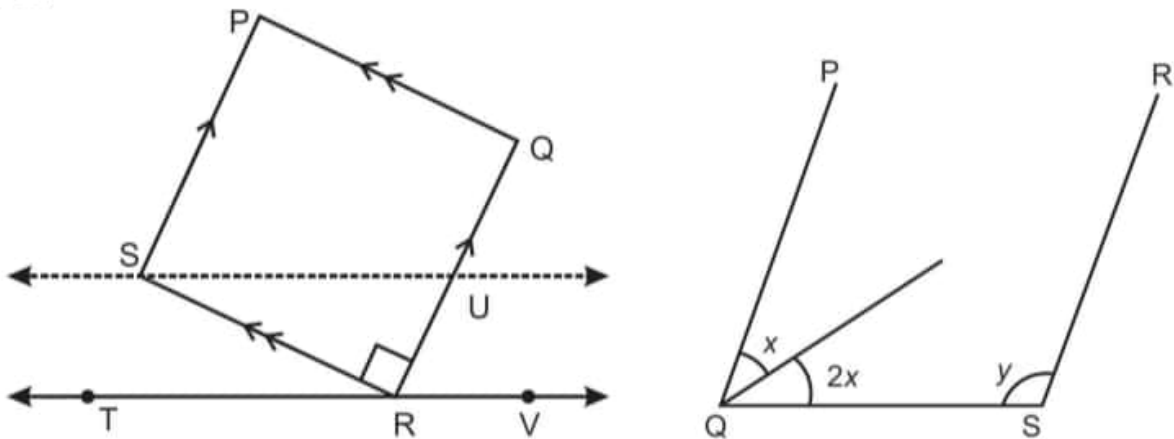
10. **Assertion (A):** Two adjacent angles always form a linear pair.

Reason (R): In a linear pair of angles, two non-common arms are opposite rays.

SECTION – B

Questions 11 to 14 carry 2 marks each.

11. The figure given below represents the sides view of a mystery spot, if $\angle SRT = 25^\circ$, then find $\angle SUR$.

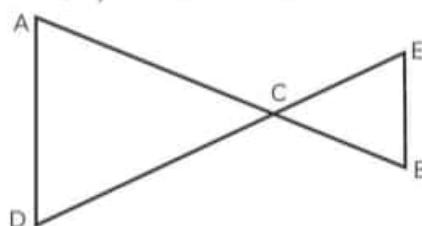


12. In the given above right sided figure, $PQ \parallel RS$, and $x : y = 2 : 3$, then find the value of y.

13. Which of the following points lie on the y-axis?

A(1, 1), B(1, 0), C(0, 1), D(0, 0), E(0, -1), F(-1, 0), G(0, 5), H(-7, 0), I(3,3)

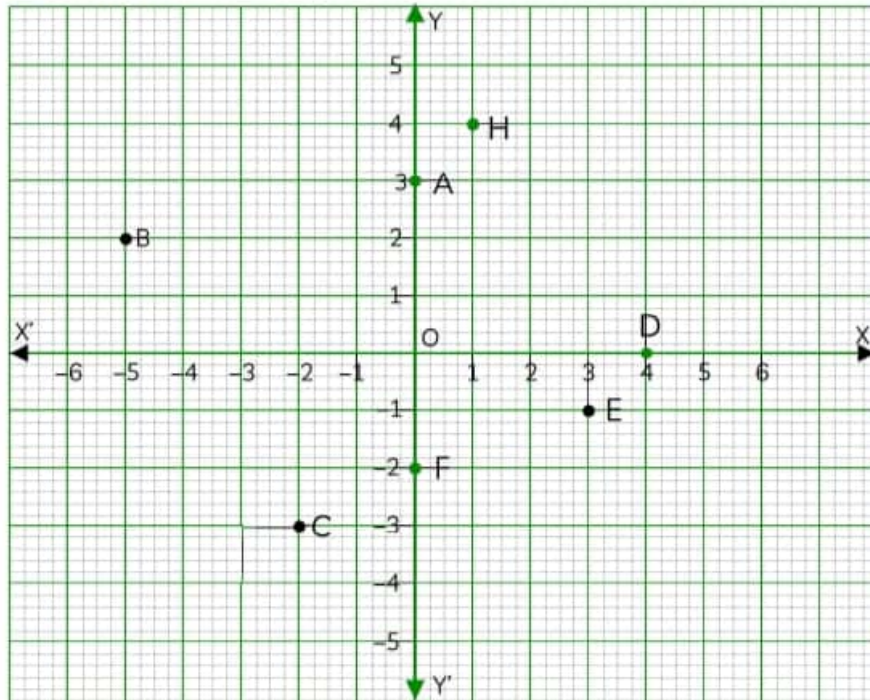
14. In the given figure $AC = DC$, $CB = CE$, then show that $AB = DE$ using Euclid's axiom.



SECTION – C

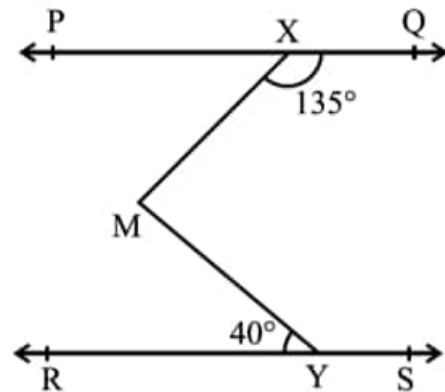
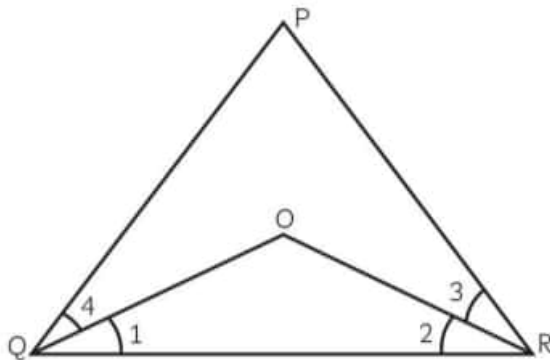
Questions 15 to 17 carry 3 marks each.

15. From the figure, identify the following:



- (a) Coordinates of B, C and E.
- (b) The point identified by the coordinates (0, -2).
- (c) The abscissa of the point H.

16. Ramesh draw a triangle on the blackboard where $\angle PQR = \angle PRQ$, $\angle 4 = \angle 3$ (see below left figure). Show that $\angle 1 = \angle 2$ using Euclid's axiom.



17. In the above right sided figure, if $PQ \parallel RS$, $\angle MXQ = 135^\circ$ and $\angle MYR = 40^\circ$, find $\angle XMY$.

SECTION – D

Questions 18 carry 5 marks.

- 18. (a) If a transversal intersects two lines such that the bisectors of a pair of corresponding angles are parallel, then prove that the two lines are parallel. (3)
- (b) An angle is 20° more than three times the given angle. If the two angles are supplementary, then find the angles. (2)

SECTION – E (Case Study Based Questions)

Questions 19 to 20 carry 4 marks each.

19. Swastik and Samar are classmates and they have participated in Inter-School Sports Carnival. This event has been organised on a rectangular ground PQRS. In the ground PQRS, lines have been drawn at a distance of 1 m each and 200 plants have also been planted at a distance of 1 m from each other along PQ. Swastik runs $\frac{1}{5}$ of the distance PQ on the second line and throws a Javelin and Samar runs $\frac{1}{4}$ of the distance PQ on the 7th line and throws the Javelin.



Read the above information and answer the following questions:

- Find the coordinates at which Swastik stands to throw Javelin.
 - Find the coordinates at which Samar stands to throw Javelin.
 - Coordinates of the point where Swastik threw Javelin lie in which quadrant?
 - If the coordinates of two points are $A(2, 90)$ and $B(4, 60)$, then find (Abscissa of B) – (Abscissa of A).
20. In a school, the principal decided to celebrate Saraswati Puja and organized the event schedule based on the school clock. The celebration took place on a special day when the school's operating hours were from 10 am to 8 pm. The entire program was meticulously planned to align with these extended hours, ensuring participation from students and staff.



- If the first function of pooja starts at 11 am, then find the angle made by hour hand since the school's opening time.
- Find the angle made by an hour hand in 50 minutes.
- if one of the angles of a linear pair is 75° , then find the other angle.

Activity no. 5

Triangles

OBJECTIVE: To verify the exterior angle property of a triangle

PRE-REQUISITE KNOWLEDGE _____

- Linear pair axiom
- Exterior angle property of a triangle
- Triangles and their various properties

MATERIALS REQUIRED _____

- Cardboard
- Geometry box with pencil
- Sketch pens
- Glazed papers
- A pair of scissors
- Adhesive fevicol/gum etc.
- Drawing sheet
- Tracing paper

PROCEDURE - _____

- Take a cardboard of a convenient size and paste a white sheet of paper on it.
- Cut out a triangle from a glazed paper and name it as $\triangle ABC$. Paste it on the cardboard, as shown in Fig. 11.1.



Fig. 11.1

- Produce the side BC of the triangle to a point D as shown in Fig. 11.2.

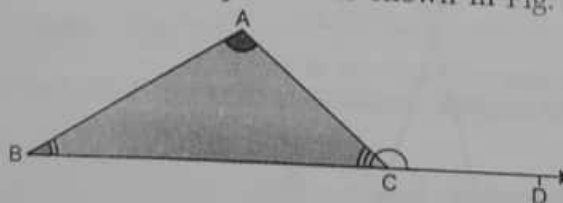


Fig. 11.2

- Cut out the angles from the drawing sheet equal to $\angle A$ and $\angle B$ using a tracing paper [See Fig. 11.3]

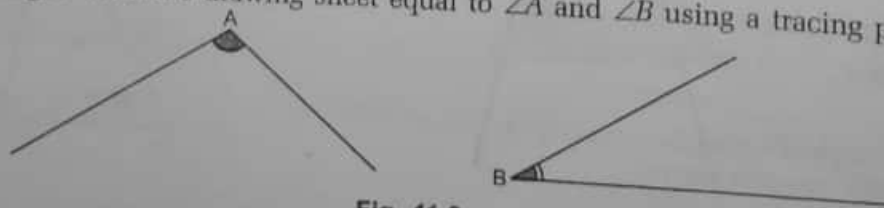


Fig. 11.3

(v) Place the two cut out angles as shown in Fig. 11.4.

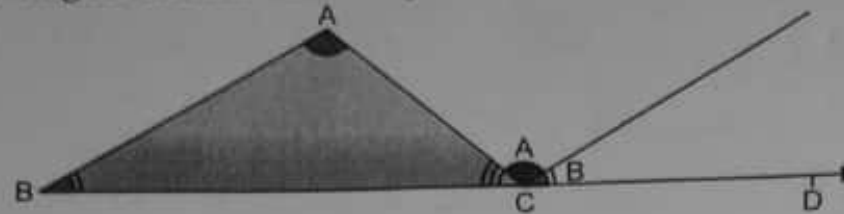


Fig. 11.4

OBSERVATION _____

Measure of $\angle A = \dots\dots\dots$, Measure of $\angle B = \dots\dots\dots$,

Sum ($\angle A + \angle B$) = $\dots\dots\dots$, Measure of $\angle ACD = \dots\dots\dots$.

From Fig. 11.2, we observe that

$\angle ACD$ is an exterior angle.

$\angle A$ and $\angle B$ are its two interior opposite angles.

In Fig. 11.4, the two cut out angles, *i.e.*, $\angle A$ and $\angle B$ together exactly cover $\angle ACD$.

Therefore, $\angle ACD = \angle A + \angle B$.

RESULT _____

We have verified the exterior angle property of a triangle.

Triangles Activity no. 6

OBJECTIVE: To verify experimentally the different criteria for congruency of triangles using triangle cut outs

PRE-REQUISITE KNOWLEDGE _____

- Concept of congruent triangles

MATERIALS REQUIRED _____

- Glazed papers
- A pair of scissors
- White sheet of paper
- Geometry box
- Cardboard
- Adhesive fevicol/gum etc.

PROCEDURE _____

- (i) Take a cardboard of a convenient size and paste a white sheet of paper on it.
- (ii) Cut out a triangle ABC from red glazed paper. Cut out another triangle DEF from red glazed paper such that $DE = AB$, $EF = BC$ and $DF = AC$ (See Fig. 13.1).

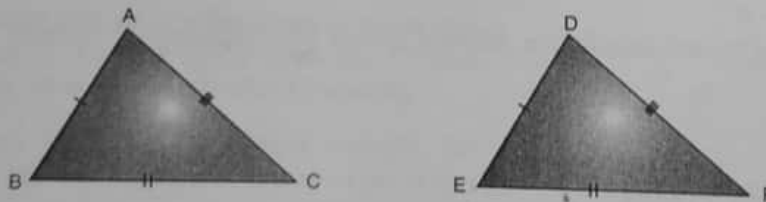


Fig. 13.1

- (iii) Cut out a pair of triangles GHI and JKL from green glazed paper such that $\angle H = \angle K$, $HI = KL$ and $\angle I = \angle L$ (See Fig. 13.2).



Fig. 13.2

MATHEMATICS ACTIVITIES AND PROJECTS—IX

(iv) Cut out a pair of triangles PQR and STU from blue glazed paper such that $PQ = ST$, $\angle Q = \angle T$ and $QR = TU$ (See Fig. 13.3).



Fig. 13.3

(v) Again cut out a right angled triangle XYZ from yellow glazed paper. Cut out another triangle LMN such that $\angle Y = \angle M = 90^\circ$, hypotenuse $XZ = LN$ and $YZ = MN$ (See Fig. 13.4).

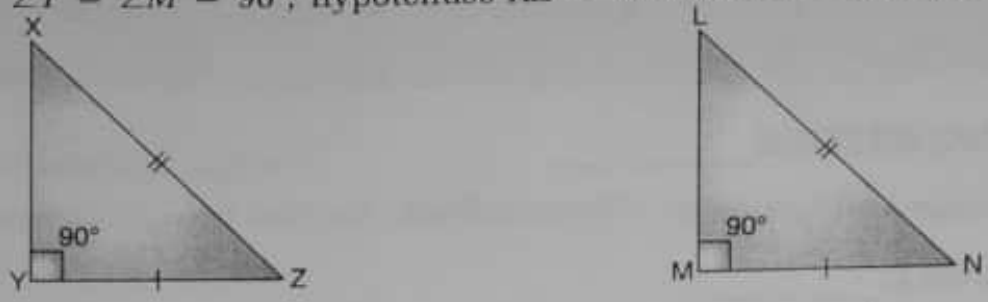


Fig. 13.4

OBSERVATIONS

1. In Fig. 13.1, ΔABC covers ΔDEF exactly. It means ΔABC is congruent to ΔDEF (SSS congruence).
2. In Fig. 13.2, ΔGHI covers ΔJKL exactly. It means ΔGHI is congruent to ΔJKL (ASA congruence).
3. In Fig. 13.3, ΔPQR covers ΔSTU exactly. It means ΔPQR is congruent to ΔSTU (SAS congruence).
4. In Fig. 13.4, ΔXYZ covers ΔLMN exactly. It means ΔXYZ is congruent to ΔLMN (RHS congruence).

RESULT

We have verified experimentally the different criteria for congruency of triangles using triangle cut outs.