



CLASS: VII

MATHEMATICS

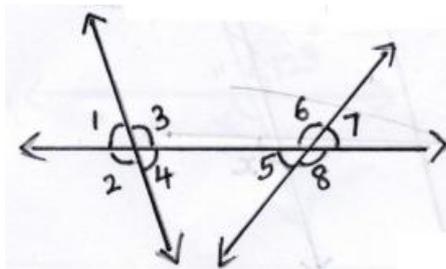
LINES AND ANGLES

SECTION A

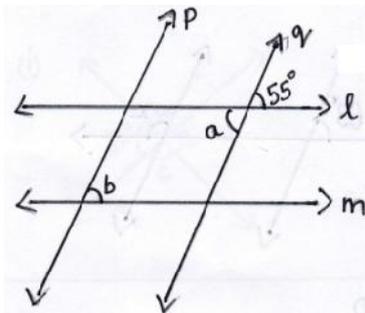
1. The supplement of 0° is _____.
2. The common end point where two rays meet to form an angle is called _____.
3. When two lines are intersected by a transversal, the corresponding angles formed are equal. Then the lines are _____.
4. If a ray stands on a line then the sum of the adjacent angles so formed is _____.
5. Two angles can be complementary if _____.

SECTION B

1. In the figure given below, name all pairs of vertically opposite angles.



2. In the given figure $l \parallel m$ and $p \parallel q$, find the measure of angles a and b.

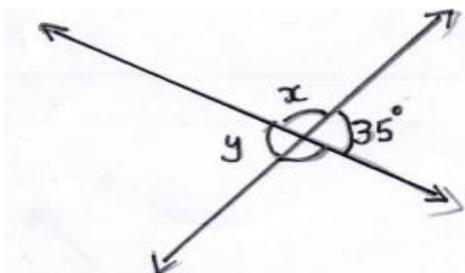


3. Find the supplement and complement of the following:

a. 75°

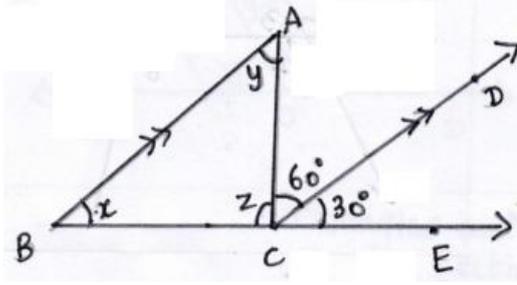
b. 67°

4. The difference in the measure of two complementary angles is 18° . Find the measure of these two angles.
5. Find the values of x and y

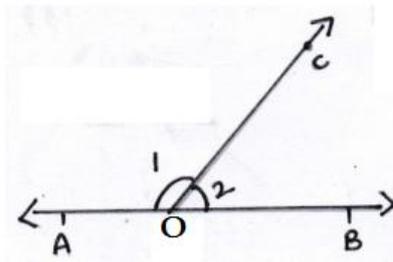
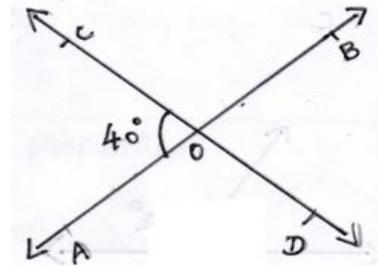


SECTION C

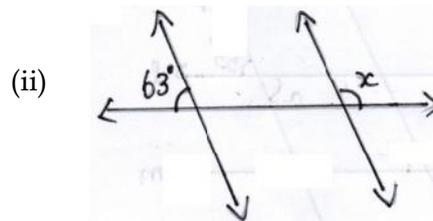
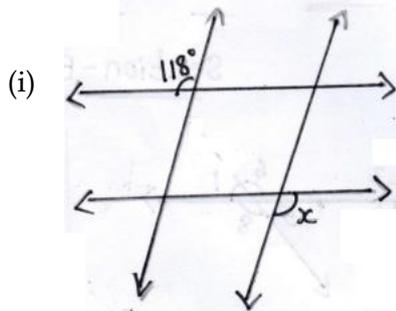
1. In the given figure, $\angle DCA = 60^\circ$, $\angle ECD = 30^\circ$. Find x , y , z . Give proper reasons.



2. The angles of a linear pair are in the ratio 2 : 7. Find the angles.
 3. Two lines AB and CD intersect at a point O. If $\angle AOC = 40^\circ$, find the measure of each of the angles $\angle AOD$, $\angle BOD$, $\angle BOC$.
 4. In the following figure, OA and OB are opposite rays.

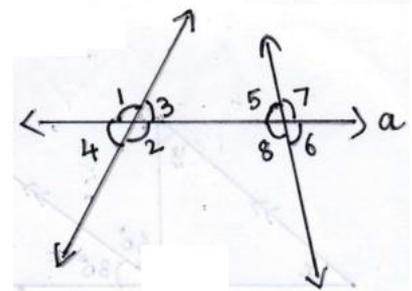


- a. If the measure of $\angle 1 = 120^\circ$, what will be the measure of $\angle 2$?
 b. If $\angle 2 = 62^\circ$, what will be the measure of $\angle 1$?
 5. In the given figures, find the value of x .

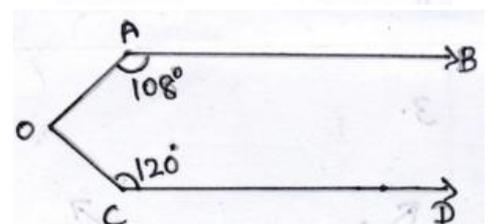


SECTION D

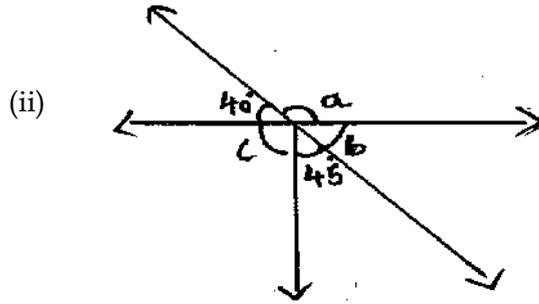
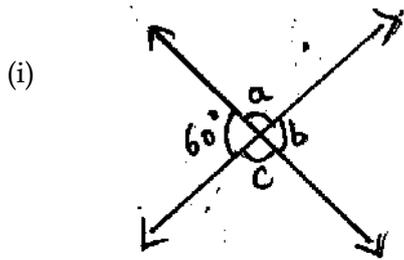
1. Line a is a transversal to lines l and m . Name the following
 (i) All pairs of alternate angles
 (ii) All pairs of corresponding angles.
 (iii) A pair of interior angles on the same side of transversal.
 (iv) A pair of exterior angles on the same side of transversal



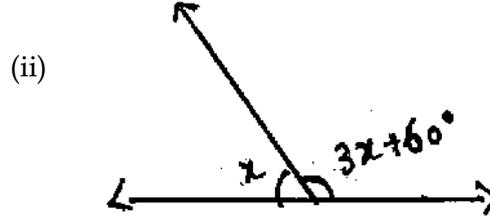
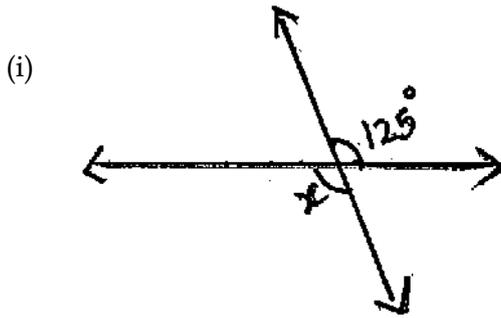
2. In the adjoining figure, it is given that $AB \parallel CD$, $\angle BAO = 108^\circ$ and $\angle OCD = 120^\circ$, find $\angle AOC$.



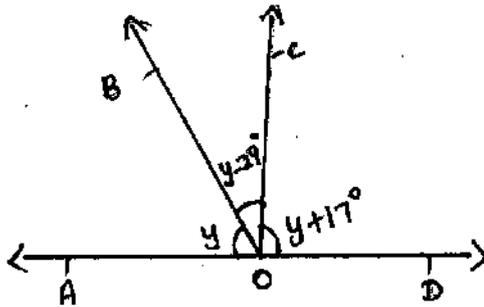
3. Find the value of angles a , b , and c in the following figures.



4. Find the value of x in the given figures. Give reasons.



5. In the adjacent figure, find the measures of $\angle AOB$, $\angle BOC$ and $\angle COD$.





CLASS: VII

MATHEMATICS

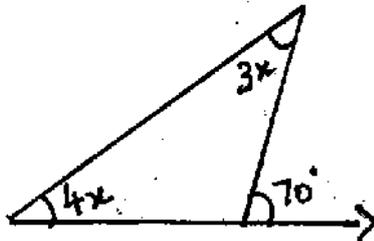
TRIANGLES AND ITS PROPERTIES

SECTION A

1. The altitude of a triangle is the line segment _____ to the base from a vertex.
2. A person goes 12 m due East and 5 m due North. The distance from the starting point is _____.
3. If one acute angle of a right angled triangle is 25° , then the other angle is _____.
4. If an exterior angle of a triangle is a right angle then the triangle is _____.
5. PQR is a triangle, right angled at Q. If $PQ = 9$ cm, and $RP = 15$ cm then $QR =$ _____.

SECTION B

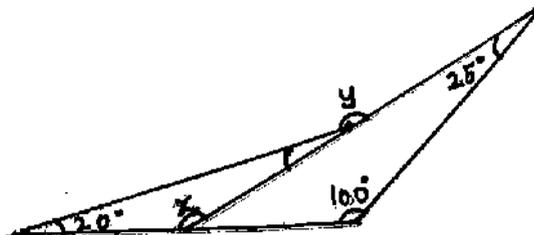
1. Calculate the missing angle if two angles of the triangle are given below:-
(i) $40^\circ, 40^\circ, \underline{\quad}$ (ii) $45^\circ, 90^\circ, \underline{\quad}$
2. One leg of a right triangle is 12 m and hypotenuse is 13 m. What is the other leg of the triangle?
3. The angles of a triangle are in the ratio of 3 : 4 : 1. Find the measure of each angle of the triangle.
4. Find the value of x in the given figure.



5. Find the measure of each angle of a triangle, when two angles are equal and the third angle is greater than each of these angles by 30° .

SECTION C

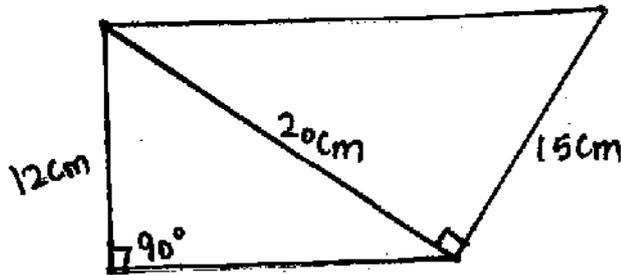
1. The lengths of the sides of some triangles are given below. Which of them are right angled?
(i) $a = 15$ cm, $b = 20$ cm, and $c = 25$ cm
(ii) $a = 5$ cm, $b = 12$ cm, and $c = 13$ cm
(iii) $a = 3$ cm, $b = 6$ cm, and $c = 7$ cm
2. Find the values of the unknown angles of x and y .



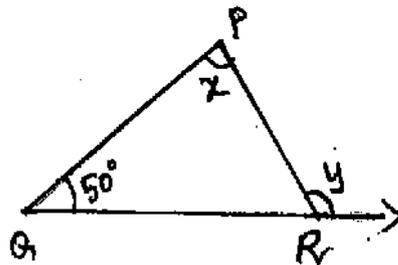
3. Find the length of the hypotenuse in $\triangle ABC$, where $\angle A = 90^\circ$, $AB = 4 \text{ cm}$, $AC = 3 \text{ cm}$.
4. One of the exterior angles of a triangle is 110° and the interior opposite angles are in the ratio $1 : 4$. Find the angles of the triangles.
5. Check whether the following measures can be the three angles of a triangle.
 - a. $70^\circ, 80^\circ, 30^\circ$
 - b. $36^\circ, 48^\circ, 80^\circ$

SECTION D

1. Two poles of heights 9 m and 14 m stand upright on a plane ground. If the distance between their feet is 12 m , find the distance between their tops.
2. If the sides of a triangle are produced in an order, show that the sum of the exterior angles so formed is 360° .
3. Find the perimeter of the quadrilateral from the given figure.

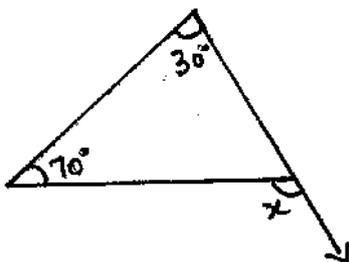


4. Given that $\triangle PQR$ is an isosceles triangle in which $PQ = PR$. Find the values of x and y .

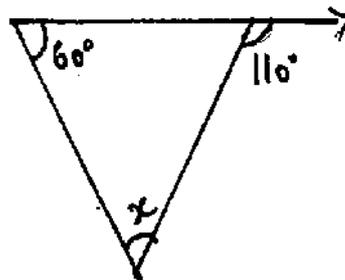


5. Find the value of the unknown angle x .

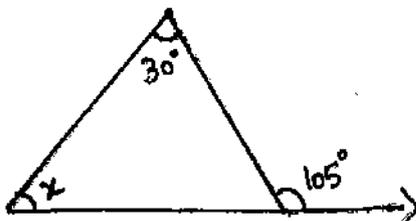
(i)



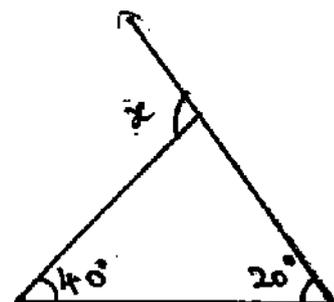
(ii)



(iii)



(iv)





CLASS:VII

MATHEMATICS

CONGRUENCE OF TRIANGLES

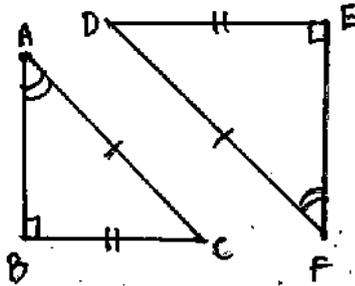
SECTION A

1. In $\triangle XYZ$, $\angle Y$ is included between XY and _____.
2. Two equilateral triangles are congruent, if their perimeters are _____.
3. Two circles are congruent if they have _____.
4. Two rectangles are _____, if their areas are equal.
5. If $AB \cong CD$ and $AB = 8$ cm. What is the length of CD ?

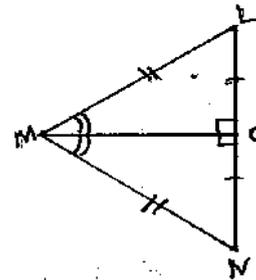
SECTION B

1. In $\triangle ABC$, $AB = AC$ and D is the midpoint of BC . Show by SSS congruence condition that $\triangle ABD \cong \triangle ACD$.
2. Explain with reason why in each case the pairs of triangles are congruent.

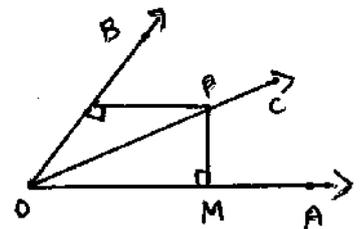
(i)



(ii)

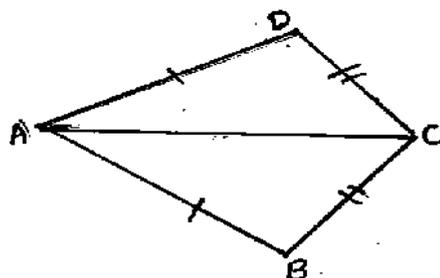


3. Show that in an isosceles triangle, the angles opposite to the equal sides are equal.
4. Without drawing the triangles, state the correspondence between the sides and the angles of the following pairs of congruent triangles.
(i) $\triangle ABC \cong \triangle PQR$ (ii) $\triangle ABC \cong \triangle QRP$
5. In the adjoining figure, $PL \perp OB$ and $PM \perp OA$ such that $PL = PM$. Is $\triangle PLO \cong \triangle PMO$? Give reasons in support of your answer.

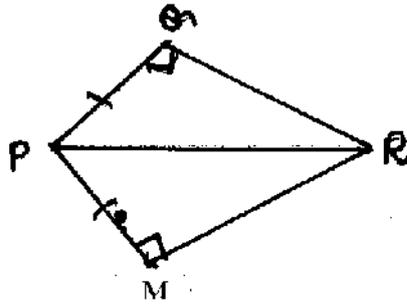


SECTION C

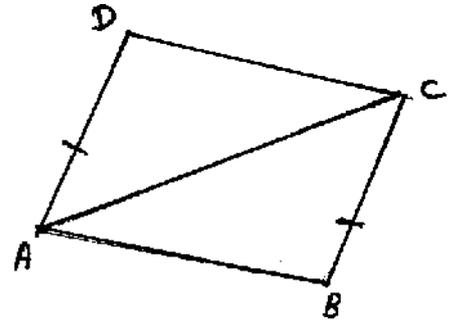
1. In the adjoining figure, $AB = AD$ and $CB = CD$. Prove that $\triangle ABC \cong \triangle ADC$.



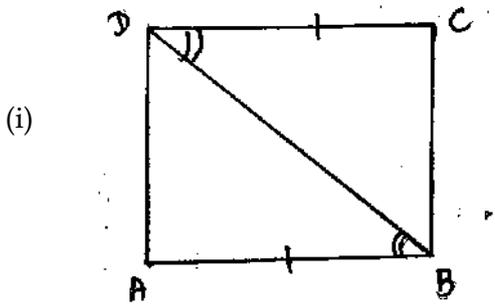
2. In the given figure, $PQ \perp QR$ and $PM \perp RM$. Also if $PQ = PM$, show that $QR = MR$.



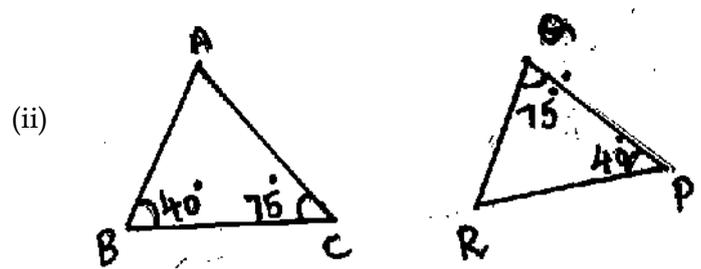
3. In the given figure, $AD = BC$ and $AD \parallel BC$ prove that $AD = DC$.



4. Name the corresponding parts for the triangles drawn in the following figures.

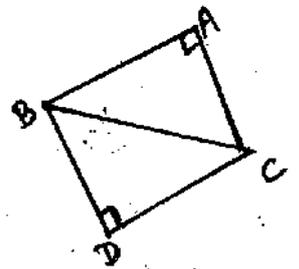


$$\triangle ABD \cong \triangle CDB$$



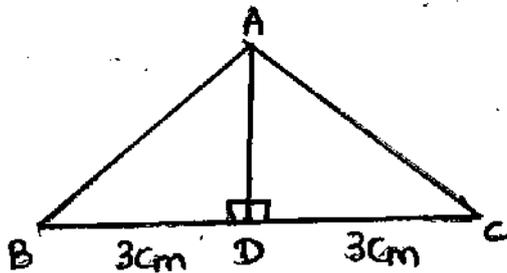
$$\triangle ABC \cong \triangle RPQ$$

5. In the given figure, $\triangle ABC$ and $\triangle DCB$ are right angled at A and D respectively and $AC = DB$. Prove that $\triangle ABC \cong \triangle DCB$.

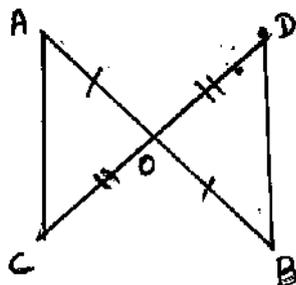


SECTION D

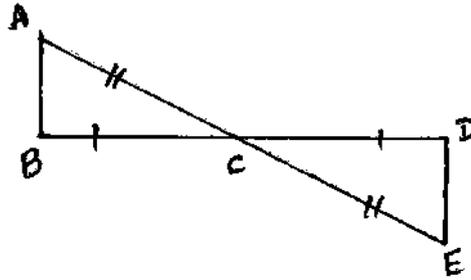
1. In $\triangle ABC$, AD is perpendicular to BC , $BD = DC = 3$ cm. Prove that $\triangle ABD \cong \triangle ACD$



2. AB and CD intersect each other at O and O is the midpoint of both AB and CD . Prove that $AC = BD$ and $AC \parallel BD$.

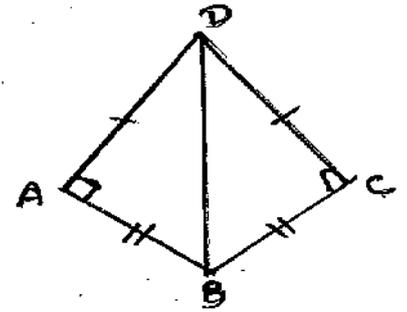


3. In the following figures, state the conditions you would show that $\triangle ABC$ and $\triangle CDE$ are congruent.



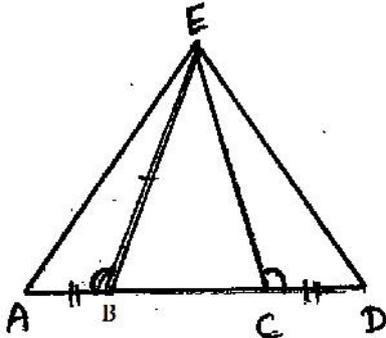
4. In the given figure, $AD = CD$ and $AB = CB$.

- (i) State three pairs of equal parts in $\triangle ABD$ and $\triangle CBD$.
- (ii) Is $\triangle ABD \cong \triangle CBD$? Give reason.
- (iii) Does BD bisect $\angle ABC$? Give reason.

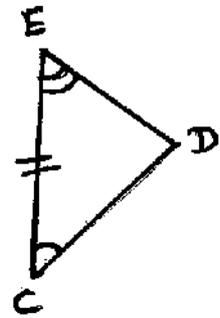
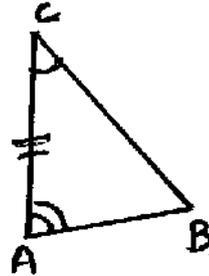


5. In each of the following figures, name the congruent triangles and state why they are congruent.

(i)



(ii)





APEX PON VIDYASHRAM, VELACHERY (2017 - 18)

HALF-YEARLY - WORKSHEET 4

CLASS: VII

MATHEMATICS

PRACTICAL GEOMETRY

1. Draw a line AB and draw another line CD parallel to AB at a distance of 3.7 cm from it.
2. Construct a ΔABC in which $AB = 5\text{cm}$, $AC = 4.3\text{ cm}$ and $\angle A = 60^\circ$. Also, draw the perpendicular bisector of BC.
3. Construct a ΔPQR in which $PQ = 5.3\text{ cm}$, $PR = 4.6\text{ cm}$, and $QR = 3.8\text{ cm}$.
4. Construct a ΔABC in which base $BC = 4.8\text{ cm}$, $\angle B = 90^\circ$ and hypotenuse $AC = 6.2\text{ cm}$.
5. Construct a right - angled triangle whose hypotenuse measures 5.6 cm and one of whose acute angles measures 30° .
6. Construct a ΔABC in which $BC = 4.8\text{ cm}$, $\angle B = 60^\circ$ and $\angle C = 75^\circ$.
