Grade 6th CBSE
Congruence of Triangles

Q1) State whether the statement true or false. Give reasons.

i) All equilateral triangles are congruent.

ii) Two circles with equal area are congruent.

iii) All squares with equal side are congruent.

Q2) If $\Delta PET \text{ and } \Delta CAN \text{ are congruent under correspondence}$:

$PET \leftrightarrow NAC$, then write the parts of
$\Delta PET \text{ that correspond to } \angle P, \angle E, TE \text{ and } PE.$

Q3) ABCD is a parallelogram with AC as its diagonal. Are the two triangles formed by the diagonal congruent? Give reason. Is $\angle BAC = \angle DCA$?

Q4 Without drawing the triangles, state the correspondence between the sides and the angles of following pairs of congruent triangles.

i) $\Delta MNR \cong \Delta GVK$

$ii) \Delta MNR \cong \Delta VKG$

Q5) Find three pairs of corresponding parts to ensure that $\Delta PQO \cong \Delta SRO$ fig(i)

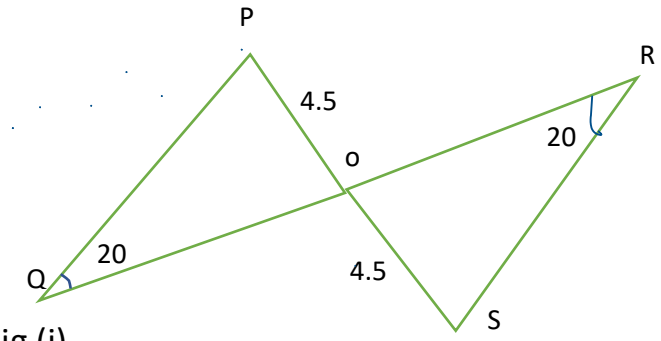
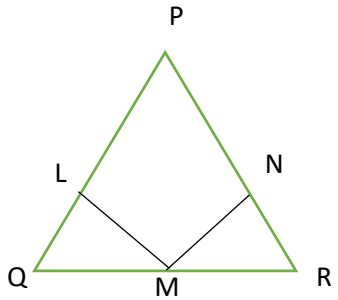


Fig (i)



Fig(ii)

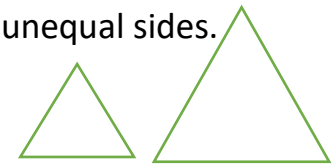
Q6 It is given that LM= MN, QM = MR, ML ⊥PQ and MN ⊥ PR. Prove that

PQ=PR.

Answer Key

Sol1)

i) False. All equilateral triangles have equal angles, but they may have unequal sides. Following are two equilateral triangles with unequal sides.



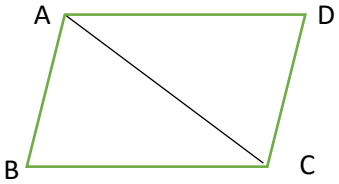
ii) True. All circles with equal area will have equal radius. All circles with equal radius are congruent.

iii) True. All angles of a square are equal (90 degree). If sides are equal, then these squares are congruent.

Sol2) $\angle P \leftrightarrow \angle N, \angle E \leftrightarrow \angle A, TE \leftrightarrow CA \; and \; PE \leftrightarrow NA$

Sol3)

Equal Parts	Reason
AB =CD	Opposite sides are equal in parallelogram
AD = CB	Opposite sides are equal in parallelogram
AC=CA	Common side
$\Delta ABC \cong \Delta CDA$	By SSS criterion
$\angle BAC = \angle DCA$	CPCT



Sol4)

i) $\Delta MNR \cong \Delta GVK$

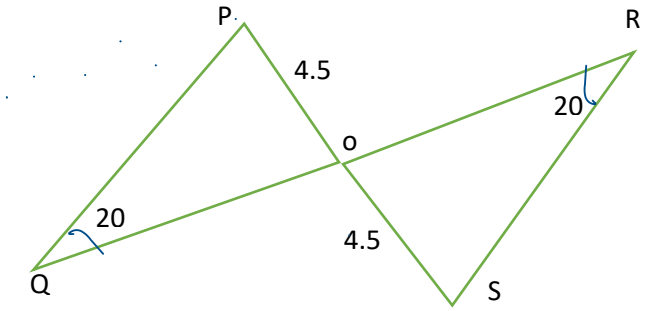
$$\angle M \leftrightarrow \angle G, \angle N \leftrightarrow \angle V, \angle R \leftrightarrow \angle K, MN = GV, NR = VK \; and \; MR = GK$$

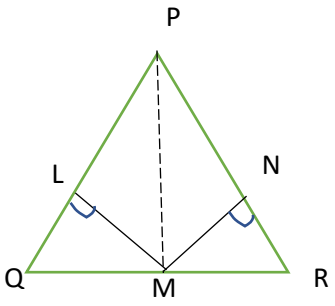
$ii)\Delta MNR \cong \Delta VKG$

$$\angle M \leftrightarrow \angle V, \angle N \leftrightarrow \angle K, \angle R \leftrightarrow \angle G, MN = VK, NR = KG \; and \; MR = VG$$

Sol 5)

Equal Parts	Reason
PO= SO	given
∠PQO =∠SRO	given
∠POQ = ∠ SOR	Vertically opposite angles
∠QPO= ∠RSO	By angle sum property
$\Delta POQ \cong \Delta SOR$	BY ASA





Sol6) Draw a imaginary line PM

Equal parts	Reason
LM=NM	Given
QM = RM	Given
<L = <N	90degree Given
$\Delta QML \cong \Delta RMN$	By RHS
LQ = NR	CPCT-------1
PM = PM	Common side
<L = <N	90 degree given

LM = NM (hypotenuse)	Given
$\Delta PLM \cong \Delta PNM$	RHS
PL = PN	By CPCT--------2

By 1 and 2

PQ = PR hence proved