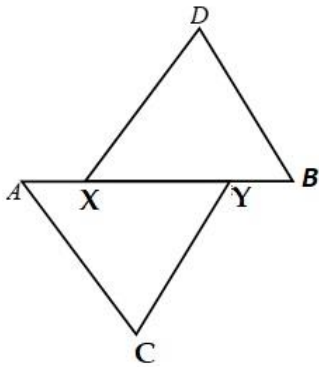


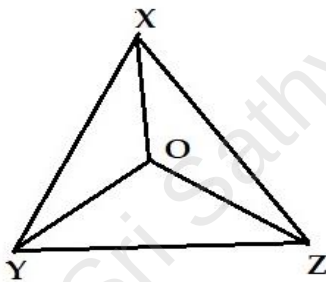


QA\_Applying SAS and ASA Rules  
Worksheet

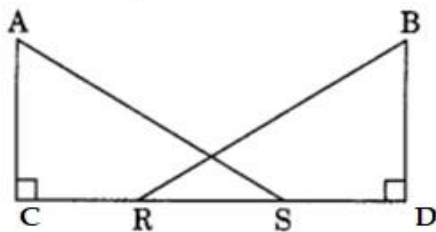
1.  $\triangle ABC \cong \triangle XYZ$ . Find the value of  $x$  and  $y$ , when  $\angle B = 60^\circ$ ,  $\angle C = 40^\circ$ ,  $\angle Y = x + 10$  and  $\angle Z = 4y - 20$
2. If  $\triangle ABC$  and  $\triangle PQR$  have  $AB = PQ$  and  $AC = PR$ , which other pair of corresponding parts of the triangles should be equal so that  $\triangle ABC \cong \triangle PQR$  by SAS rule of congruence?
  - a)  $AC = PQ$
  - b)  $\angle C = \angle R$
  - c)  $\angle A = \angle P$
  - d)  $AB = PQ$
3. In the following figure,  $AX = BY$ ,  $CY = DX$  and  $\angle AYC = \angle BXD$ . Prove that  $\triangle AYC \cong \triangle BXD$ .



4. In  $\triangle XYZ$ ,  $XO$  bisects  $\angle X$  and  $\angle XYO = \angle XZO$ . Show that  $\triangle XYO \cong \triangle XZO$



5. In the given figure,  $AC = BD$ ,  $CR = DS$ . Show that  $\triangle ACS \cong \triangle BDR$ .



6. ABCD is a square and O is a point in its interior such that  $\triangle AOB$  is an equilateral triangle. Prove that  $\triangle AOD \cong \triangle BOC$ .
7. In  $\triangle ABC$ , M is the midpoint of BC.  
 $MP \perp AB$ ,  $MQ \perp AC$  and  $\angle BMP = \angle CMQ$ . Show that  $\triangle BPM \cong \triangle CQM$ .



## QA\_Applying SAS and ASA Rules Answer Key



1.  $\triangle ABC \cong \triangle XYZ$   
 $\angle B = \angle Y$  (CPCT)  
 $\Rightarrow x + 10 = 60^\circ$   
 $\angle C = \angle Z$   
 $\Rightarrow 4y - 20 = 40^\circ$ .  
 Solving the equation gives  $x = 50$  and  $y = 15$

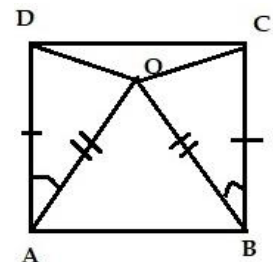
2. Option c)

3.  $AX = BY$   
 $\Rightarrow AX + XY = BY + XY$   
 $\Rightarrow AY = BX$  .... (i)  
 In  $\triangle AYC$  and  $\triangle BXD$ ,  
 $AY = BX$  [From (i)]  
 $\angle AYC = \angle BXD$  [Given]  
 $CY = DX$  [Given]  
 $\therefore \triangle AYC \cong \triangle BXD$  (SAS rule)

4. In  $\triangle XYZ$   
 $XO$  bisects  $\angle X$ .  
 $\therefore \angle YXO = \angle ZXO$   
 $\angle XYO = \angle XZO$  (Given)  
 $XO$  is common  
 $\therefore \triangle YXO \cong \triangle ZXO$  by AAS congruence rule

5. In  $\triangle ACS$  and  $\triangle BDR$   
 $AC = BD$  (Given)  
 $CR = DS$  (Given)  
 $CR + RS = DS + RS$  (Adding RS to both sides)  
 $CS = DR$   
 $\angle ACS = \angle BDR = 90^\circ$  (Given)  
 $\triangle ACS \cong \triangle BDR$  (by SAS rule)

6. In  $\triangle AOD$  and  $\triangle BOC$ .  
 $DA = CB$  (Sides of a square).  
 $AO = BO$  (Sides of an equilateral triangle)  
 $\angle DAO = \angle CBO = 90^\circ - 60^\circ = 30^\circ$  (Each angle of the square is  $90^\circ$  and of equilateral triangle is  $60^\circ$ )  
 $\therefore \triangle AOD \cong \triangle BOC$  (SAS rule)



7. In  $\triangle ABC$ , M is the midpoint of BC.  
 $BM = CM$   
 $\therefore \angle BMP = \angle CMQ$  (Given)  
 $MP \perp AB$ ,  $MQ \perp AC$   
 $\angle BPM = \angle CQM = 90^\circ$ .  
 $\therefore \triangle BPM \cong \triangle CQM$  (AAS rule)

