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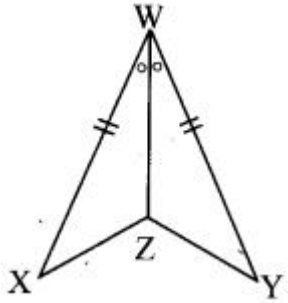
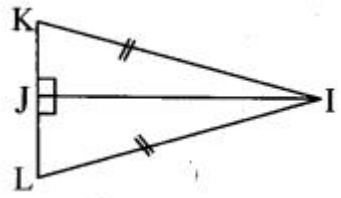
Practice Set 13.1 8th Std Maths Answers Chapter 13 Congruence of Triangles

Congruence of Triangles Practice Set 13.1 Question 1.
In each pair of triangles in the following figures, parts bearing identical marks are congruent. State the test and correspondence of vertices by which triangles in each pair are congruent.
i.



ii.



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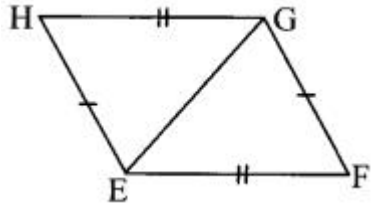
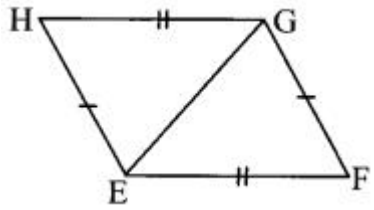
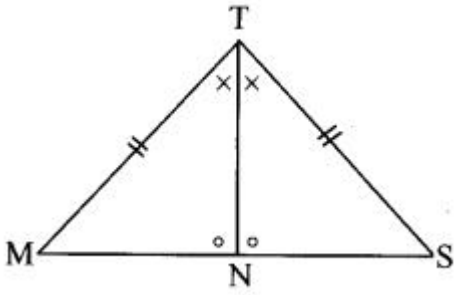


iv.

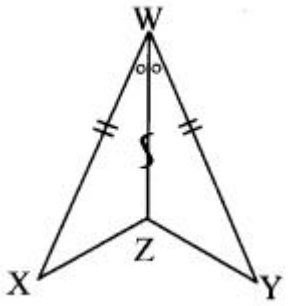


v.



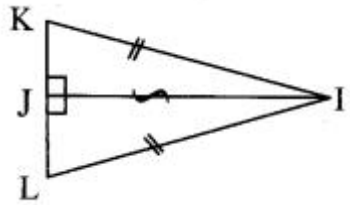
Solution:

i.



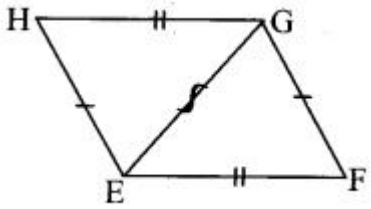
The two triangles are congruent by SAS test in the correspondence XWZ ↔ YWZ.

ii.



The two triangles are congruent by hypotenuse-side test in the correspondence KJI ↔ LJI.

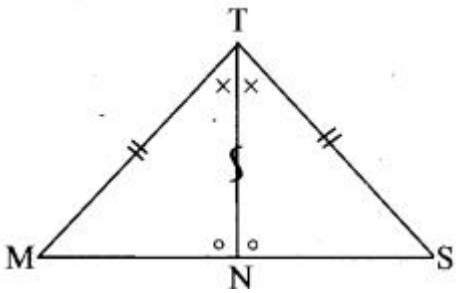
iii.



The two triangles are congruent by SSS test in the correspondence HEG ↔ FGE.

iv.
The two triangles are congruent by ASA test is the correspondence SMA ↔ OPT.

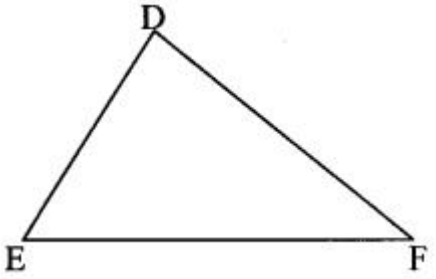
v.



The two triangles are congruent by ASA test or SAS test or SAA test in the correspondence MTN ↔ STN.

Maharashtra Board Class 8 Maths Chapter 13 Congruence of Triangles Practice Set 13.1 Intext Questions and Activities

Practice Set 13.1 Question 1.
Write answers to the following questions referring to the given figure.

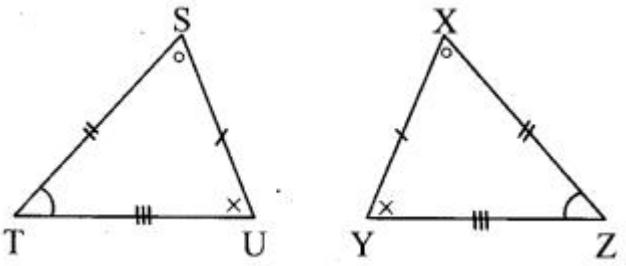


1. Which is the angle opposite to the side DE?
2. Which is the side opposite to ∠E?
3. Which angle is included by side DE and side DF?
4. Which side is included by ∠E and ∠F?
5. State the angles adjacent to side DE. (Textbook pg, no. 81)

Solution:

1. ∠DFE i.e. ∠F is the angle opposite to side DE.
2. Side DF is the side opposite to ∠E.
3. ∠EDF i.e. ∠D is included by side DE and side DF.
4. Side EF is included by ∠E and ∠F.
5. ∠DEF and ∠EDF i.e. ∠E and ∠D are adjacent to side DE.

Congruence of Triangles Class 8th Practice Set 13.1 Question 2.
In the given figure, parts of triangles indicated by identical marks are congruent.
a. Identify the one-to-one correspondence of vertices in which the two triangles are congruent and write the congruence.
b. State with reason, whether the statement, ΔXYZ ≅ ΔSTU is right or wrong. (Textbook pg. no. 82)



Solution:
a. From the figure,
S ↔ X, T ↔ Z, U ↔ Y i.e.,
STU ↔ XZY, or SUT ↔ XYZ, or
TUS ↔ ZYX, or TSU ↔ ZXY, or
UTS ↔ YZX, or UST ↔ YXZ

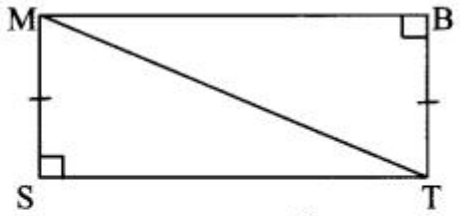
∴ ΔSTU ≅ ΔXZY, or ΔSUT ≅ ΔXYZ, or
ΔTUS ≅ ΔZYX, or ΔTSU ≅ ΔZXY, or
ΔUTS ≅ ΔYZX, or ΔUST ≅ ΔYXZ

b. If ΔXYZ ≅ ΔSTU, then
∠Y ≅ ∠T, ∠Z ≅ ∠U,
seg XY ≅ seg ST, seg XZ ≅ seg SU
∴ But, all the above statements are wrong. The statement AXYZ ≅ ASTU is wrong.

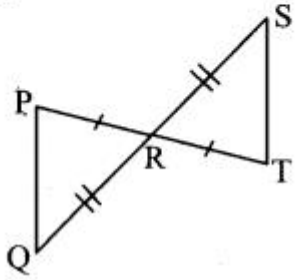
Practice Set 13.2 8th Std Maths Answers Chapter 13 Congruence of Triangles

Congruence of Triangles Class 8th Practice Set 13.2 Question 1.
In each pair of triangles given below, parts shown by identical marks are congruent. State the test and the one-to-one correspondence of vertices by which triangles in each pair are congruent. Also state the remaining congruent parts.

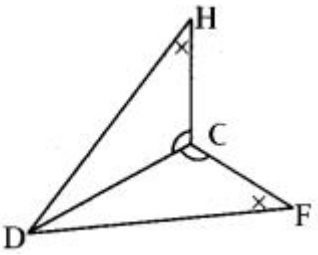
i.



ii.



iii.



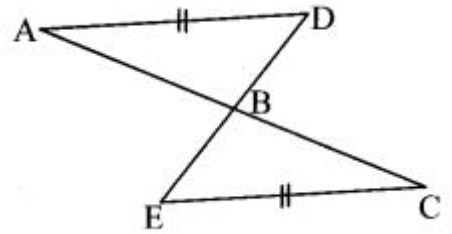
Solution:
i. In ΔMST and ΔTBM,
∴ side MS ≅ side TB ... [Given]
m∠MST = m∠TBM = 90° ... [Given]
hypotenuse MT ≅ hypotenuse MT
...[Common side]
∴ ΔMST ≅ ΔTBM ...[by hypotenuse-side test]
∴ side ST ≅ side BM ...[Corresponding sides of congruent triangles]
∠SMT ≅ ∠BTM ...[Corresponding sides of congruent triangles]
∠STM ≅ ∠BMT ...[Corresponding sides of congruent triangles]

ii. In ΔPRQ and ΔTRS,
side PR ≅ side TR ... [Given]
∠PRQ ≅ ∠TRS ...[Vertically opposite angles]
side RQ ≅ side RS ... [Given]
∴ ΔPRQ ≅ ΔTRS ...[by SAS test]
∴ side PQ ≅ side TS ...[Corresponding sides of congruent triangles]

∠RPQ ≅ ∠RTS ...[Corresponding sides of congruent triangles]
∠PQR ≅ ∠TSR ...[Corresponding sides of congruent triangles]

iii. In ΔDCH and ΔDCF,
∠DCH ≅ ∠DCF ...[Given]
∠DHC ≅ ∠DFC ...[Given]
side DC ≅ side DC ...[Common side]
∴ ΔDCH ≅ ΔDCF ...[by AAS test]
∴ side HC ≅ side FC ...[Corresponding sides of congruent triangles]
side DH ≅ side DF...[Corresponding sides of congruent triangles]
∠HDC ≅ ∠FDC ....[Corresponding sides of congruent triangles]

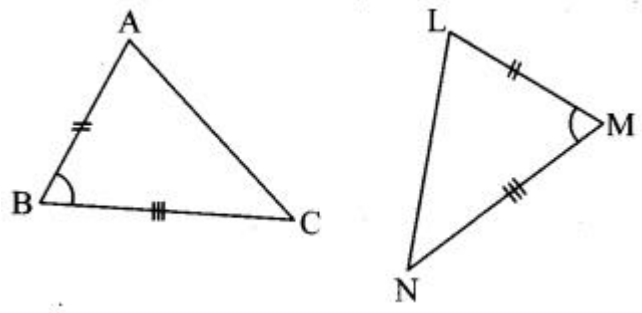
Congruence of Triangles Practice Set 13.2 Question 2.
In the given figure, seg AD ≅ seg EC. Which additional information is needed to show that ΔABD and ΔEBC will be congruent by AAS test?



Solution:
In ΔABD and ΔCBE,
∴ seg AD ≅ seg CE ...[Given]
∠ABD ≅ ∠CBE ...[Vertically opposite angles]
∴ The necessary condition for the two triangles to be congruent by AAS test is
∠ADB ≅ ∠CEB, or
∠DAB ≅ ∠ECB

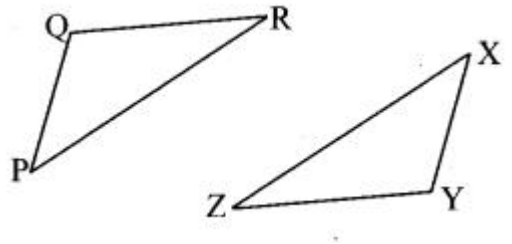
Maharashtra Board Class 8 Maths Chapter 13 Congruence of Triangles Practice Set 13.2 Intext Questions and Activities

Practice Set 13.2 Class 8 Question 1.
Draw ΔABC and ΔLMN such that two pairs of their sides and the angles included by them are congruent.
Draw ΔABC and ΔLMN, l(AB) = l(LM), l(BC) = l(MN), m∠ABC = m∠LMN.
Copy ΔABC on a tracing paper. Place the paper on ΔLMN in such a way that point A coincides with point L, side AB overlaps side LM. What do you notice?(Textbook pg. no. 83)



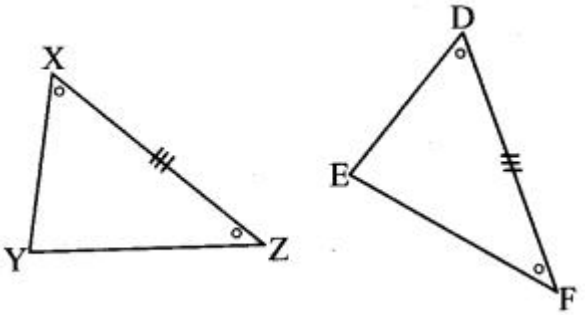
Solution:
We notice that ΔABC ≅ ΔLMN.

Congruence of Triangles Class 8 Solutions Question 2.
Draw ΔPQR and ΔXYZ such that l(PQ) = l(X Y), l(Q R) = l(YZ), l(RP) = l(ZX). Copy ΔPQR on a tracing paper. Place it on ΔXYZ observing the correspondence P ↔ X, Q ↔ Y, R ↔ Z. What do you notice? (Textbook pg. no. 84)



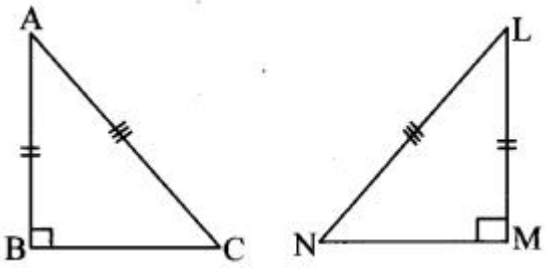
Solution:
We notice that ΔPQR ≅ ΔXYZ.

Congruence of Triangles Class 8 Question 3.
Draw ΔXYZ and ΔDEF such that, l(XZ) = l(DF), ∠X ≅ ∠D and ∠Z ≅ ∠F.
Copy ΔXYZ on a tracing paper and place it over ΔDEF. What do you notice?(Textbook pg. no. 84)



Solution:
We notice that ΔXYZ ≅ ΔDEF in the correspondence X ↔ D, Y ↔ E, Z ↔ F.

Question 4.
Draw two right angled triangles such that a side and the hypotenuse of one is congruent with the corresponding parts of the other. Copy one triangle on tracing paper and place it over the other. What do you notice? (Textbook pg. no. 84)



Solution:
We notice that the two triangles are congruent.
(Students should draw figures and verify the answers.)

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