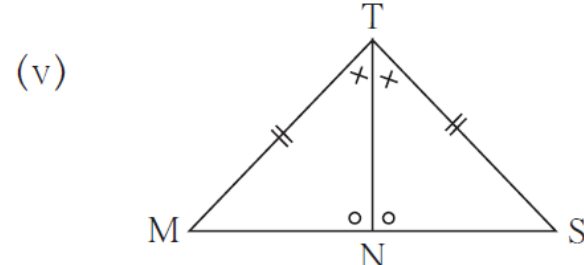
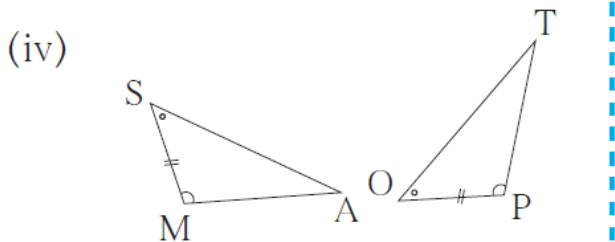
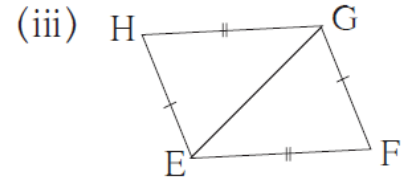
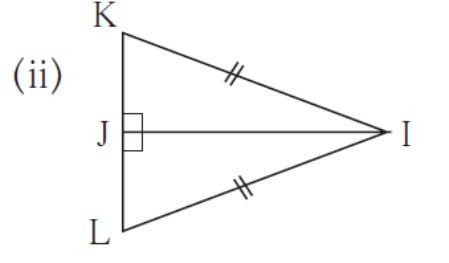
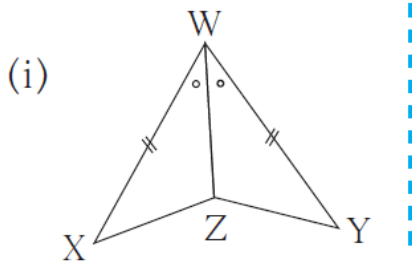


Practice Set 13.1

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.



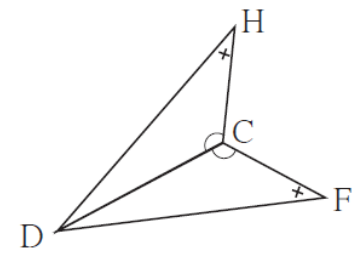
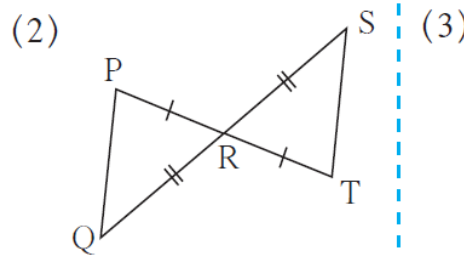
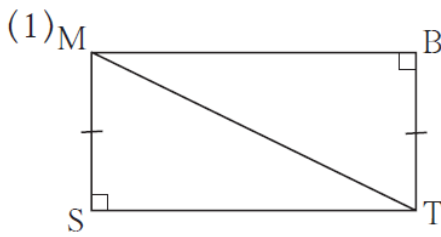
Solution:

- (i) By SAS test, in the correspondence $XWZ \leftrightarrow YWZ$.
- (ii) By Hypotenuse-side test, in the correspondence $KJI \leftrightarrow LJI$.
- (iii) By SSS test, in the correspondence $HEG \leftrightarrow FGE$.
- (iv) By ASA test, in the correspondence $SMA \leftrightarrow OPT$.
- (v) By SAA test, in the correspondence $MTN \leftrightarrow STN$.

Practice Set 13.2

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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 and remaining congruent parts.



Solution:

(1)

In ΔMST and ΔTBM , we have
side $MS \cong$ side TB (given)
 $\angle MST \cong \angle TBM$ (right angle)
And, side MT is common

Hence, by Hypotenuse-side test $\Delta MST \cong \Delta TBM$.
Now, from corresponding parts of congruent triangles
side $ST \cong$ side MB ,
 $\angle SMT \cong \angle BTM$,
 $\angle STM \cong \angle BMT$.

(2)

In ΔPRQ and ΔTRS , we have
side $PR \cong$ side RT (given)
side $QR \cong$ side RS (given)
 $\angle PRQ \cong \angle SRT$ (vertically opposite angles)

Hence, by SAS test $\Delta PRQ \cong \Delta TRS$.
Now, from corresponding parts of congruent triangles
side $PQ \cong$ side ST ,
 $\angle QPR \cong \angle STR$,
 $\angle PQR \cong \angle TSR$.

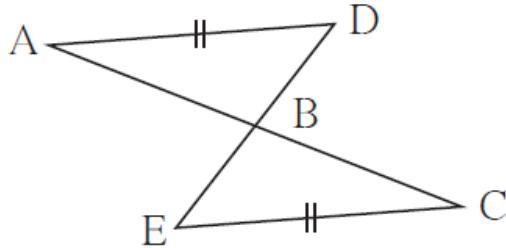
(3)

In ΔDHC and ΔDFC , we have
 $\angle DCH \cong \angle DCF$ (given)
 $\angle DHC \cong \angle DFC$ (given)
And, side DC is common

Hence, by AAS test $\Delta DHC \cong \Delta DFC$.
Now, from corresponding parts of congruent triangles

side $DH \cong$ side DF ,
side $HC \cong$ side FC ,
 $\angle HDC \cong \angle FDC$.

2. In the adjacent figure, seg $AD \cong$ seg EC . Which additional information is needed to show that $\triangle ABD$ and $\triangle EBC$ will be congruent by A-A-S test?



Solution:

In $\triangle ABD$ and $\triangle EBC$, we have
side $AD \cong$ side EC ... (given)
 $\angle ABD \cong \angle EBC$... (vertically opposite angles)

Now,

In order to show that $\triangle ABD$ and $\triangle EBC$ will be congruent by A-A-S test, one of the following is required:

$\angle BAD \cong \angle BCE$

or

$\angle BDA \cong \angle BEC$.