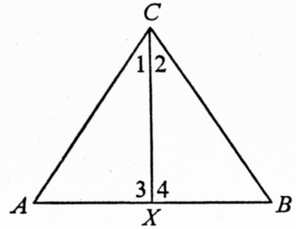
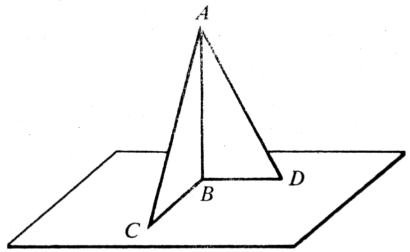
In Exs. 1–6 prove that $\triangle ACX \cong \triangle BCX$.



Exs. 1–6

A

1. Given: $\overline{AX} \cong \overline{BX}$; $\overline{AC} \cong \overline{BC}$.
2. Given: $\overline{AC} \cong \overline{BC}$; $\angle 1 \cong \angle 2$.
3. Given: $\angle 3$ and $\angle 4$ are rt. $\angle$s; $\overline{AC} \cong \overline{BC}$.
4. Given: $\angle 3$ and $\angle 4$ are rt. $\angle$s; $\overline{AX} \cong \overline{BX}$.
5. Given: $\overline{CX} \perp \overline{AB}$; $\overline{AC} \cong \overline{BC}$.
6. Given: $\overline{CX}$ is $\perp$ bisector of $\overline{AB}$.

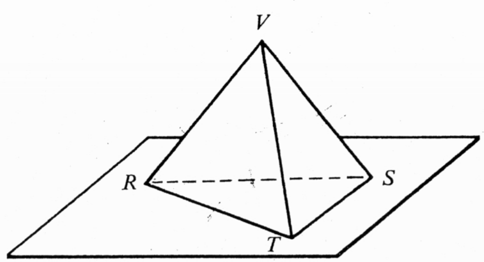


Exs. 7, 8

7. Given: $\overline{AB} \perp \overline{BC}$; $\overline{AB} \perp \overline{BD}$;
   $\overline{BC} \cong \overline{BD}$.

   Prove: $\triangle ABC \cong \triangle ABD$.
8. Given: $\overline{AB} \perp \overline{BC}$; $\overline{AB} \perp \overline{BD}$;
   $\overline{AC} \cong \overline{AD}$.

   Prove: $\triangle ABC \cong \triangle ABD$.
9. Use your ruler and protractor to draw two triangles each having an angle with measure 70, an angle with measure 50, and a side of length 4 included between these angles. What seems to be true about the triangles? The $\triangle$s are $\cong$.
10. Repeat Exercise 9, using angle measures of 40 and 100 and a length of 3. The $\triangle$s are $\cong$.
11. Using the formal statement of Postulate 12 as a guide, write a formal statement of Postulate 13.
12. Write formal statements of Theorem 6–2 and Postulate 14.



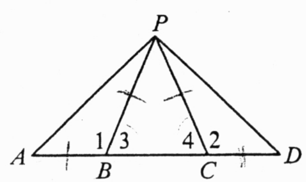
Exs. 13, 14

B

13. Given: $\overline{RT} \cong \overline{RS}$;
    $\overline{VT} \cong \overline{VS}$.

    Prove: $\triangle VRT \cong \triangle VRS$.
14. Given: $\angle VTR \cong \angle VTS$;
    $\overline{TR} \cong \overline{TS}$.

    Prove: $\triangle VTR \cong \triangle VTS$.



Exs. 15, 16

15. Given: $\triangle ADP$; $\angle 3 \cong \angle 4$;
    $\overline{AB} \cong \overline{DC}$; $\overline{PB} \cong \overline{PC}$.

    Prove: $\triangle ABP \cong \triangle DCP$
16. Given: $\triangle ADP$; $m\angle 1 + m\angle 4 = 180$;
    $\overline{AB} \cong \overline{DC}$; $\overline{PB} \cong \overline{PC}$.

    Prove: $\triangle ABP \cong \triangle DCP$.

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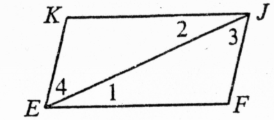
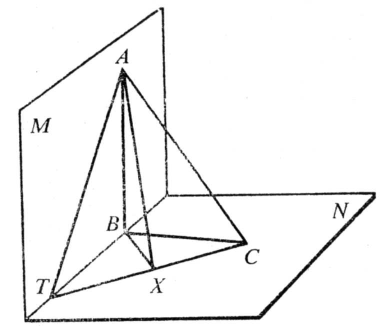


Exs. 17, 18

17. Given: $\overline{EF} \parallel \overline{KJ}$; $\overline{EF} \cong \overline{JK}$.

    Prove: $\triangle EFJ \cong \triangle JKE$.
18. Given: $\overline{JF} \parallel \overline{KE}$; $\overline{JF} \cong \overline{EK}$.

    Prove: $\triangle EFJ \cong \triangle JKE$.
19. Prove: If $\overline{QX}$ is perpendicular to $\overline{AB}$ at X, the midpoint of $\overline{AB}$, then $\triangle AXQ \cong \triangle BXQ$.
20. Prove: If P is a point on $\overrightarrow{OQ}$ in the interior of $\angle RON$, $\overline{PX} \perp \overline{OR}$ at X, $\overline{PY} \perp \overline{ON}$ at Y, and $\overline{OX} \cong \overline{OY}$, then $\triangle POX \cong \triangle POY$.



Exs. 21, 22

C

21. Given: $\overline{BX}$ is $\perp$ bisector of $\overline{TC}$;
    $\overline{AT} \cong \overline{AC}$.

    Prove: $\triangle AXT \cong \triangle AXC$.
22. Given: $\overline{AB} \perp$ plane N;
    $\overline{AT} \cong \overline{AC}$.

    Prove: $\triangle ABT \cong \triangle ABC$.