

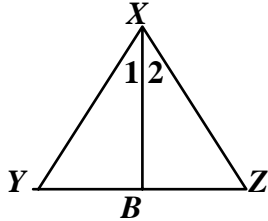
NAME: _____

P.I. G.G.27: Write a proof arguing from a given hypothesis to a given conclusion

1. Write a flow proof of the Isosceles Triangle Theorem.

Given: $\overline{XY} \cong \overline{XZ}$, \overline{XB} bisects $\angle YXZ$

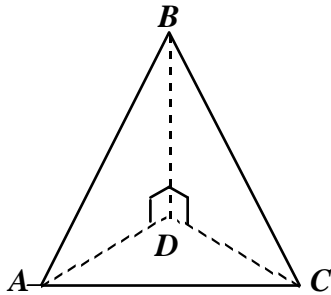
Prove: $\angle Y \cong \angle Z$



2. Write a flow proof.

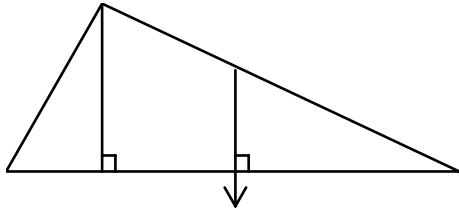
Given: $\overline{BD} \perp \overline{AD}$, $\overline{BD} \perp \overline{DC}$, and $\triangle ABC$ is isosceles.

Prove: $\triangle ABD \cong \triangle CBD$

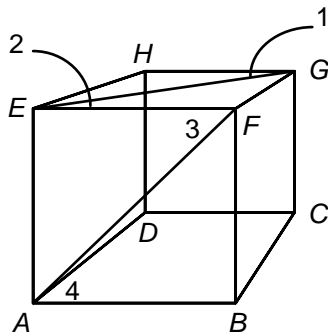


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3. Write a flow proof to prove that the perpendicular bisector of the side of a scalene triangle is parallel to the altitude to that side.



4. Write a flow proof.
Given: $\angle 1 \cong \angle 2$, $\angle 3 \cong \angle 4$
Prove: $\overline{HG} \parallel \overline{AB}$



5. To find the formula for the area of a trapezoid, you can rotate the trapezoid and place the image next to the original to make a parallelogram. Write a flow proof to show that the figure made from the two trapezoids is a parallelogram.

[1] Check students' work. Include SAS and CPCTC.

[2] Check students' work.

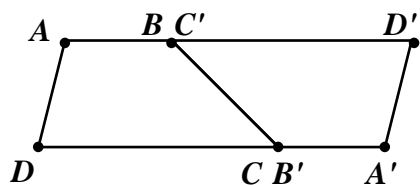
Check students' work. They should show that since both are perpendicular to the same line, they form

[3] 90° angles with the line. By the converse of the Corresponding Angles Postulate, the lines are parallel.

Check students' work. They should use the converse of the alternate interior angles theorem to show

[4] $\overline{HG} \parallel \overline{EF}$ and $\overline{EF} \parallel \overline{AB}$, so $\overline{HG} \parallel \overline{AB}$.

Check students' work. They should show that in trapezoid $ABCD$, \overline{AB} and \overline{CD} are parallel, so $\angle A$ and $\angle D$ are supplementary. In the image $A'B'C'D'$, $\angle A \cong \angle A'$, so $\angle A'$ and $\angle D$ are also supplementary. Hence, $\overline{AD} \parallel \overline{A'D'}$. Similarly, prove $\overline{AD'} \parallel \overline{A'D}$, so $AD'A'D$ is a parallelogram.



[5] _____