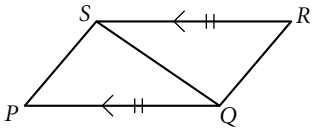
# Lesson 4.7 • Flowchart Thinking

**Name** _____ **Period** _____ **Date** _____

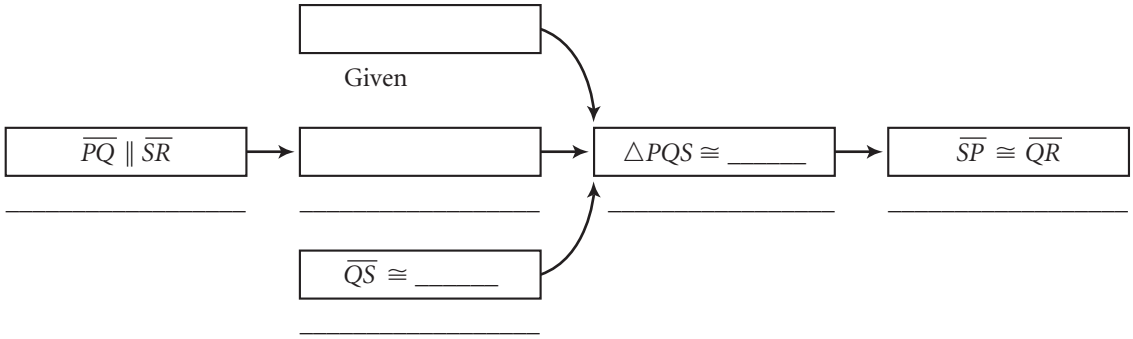
Complete the flowchart for each proof.

**1. Given:** $\overline{PQ} \parallel \overline{SR}$ and $\overline{PQ} \cong \overline{SR}$

**Show:** $\overline{SP} \cong \overline{QR}$

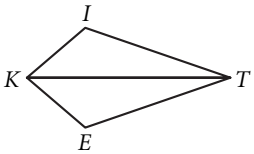



**Flowchart Proof**

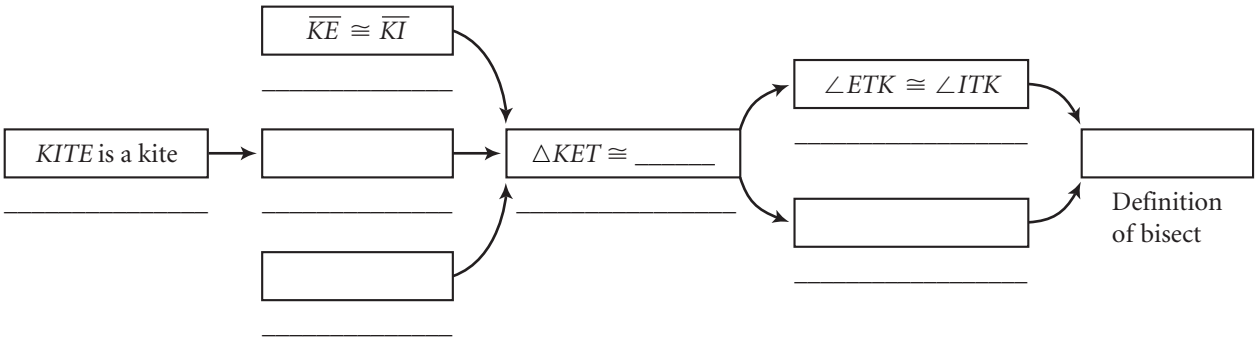



**2. Given:** Kite $KITE$ with $\overline{KE} \cong \overline{KI}$

**Show:** $\overline{KT}$ bisects $\angle EKI$ and $\angle ETI$

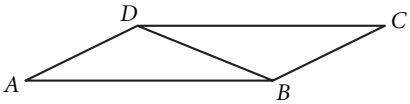



**Flowchart Proof**

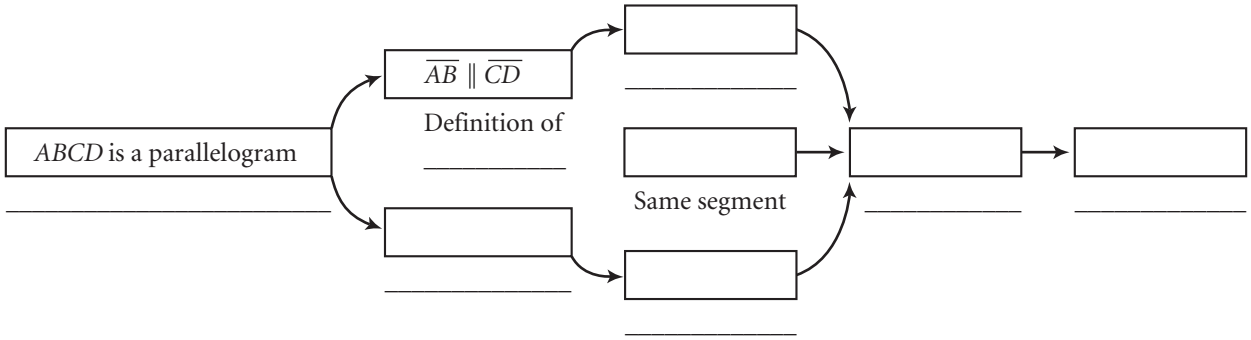



**3. Given:** $ABCD$ is a parallelogram

**Show:** $\angle A \cong \angle C$




**Flowchart Proof**





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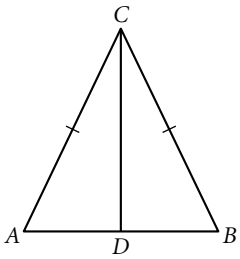
# Lesson 4.8 • Proving Special Triangle Conjectures

**Name** _____ **Period** _____ **Date** _____

In Exercises 1–3, use the figure at right.




**1.** $\overline{CD}$ is a median, perimeter $\triangle ABC = 60$, and $AC = 22$. $AD =$ _____

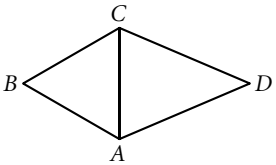
**2.** $\overline{CD}$ is an angle bisector, and $m\angle A = 54°$. $m\angle ACD =$ _____

**3.** $\overline{CD}$ is an altitude, perimeter $\triangle ABC = 42$, $m\angle ACD = 38°$, and $AD = 8$. $m\angle B =$ _____, $CB =$ _____

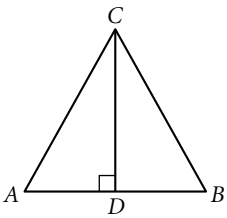
**4.** $\triangle EQU$ is equilateral. $m\angle E =$ _____

**5.** $\triangle ANG$ is equiangular and perimeter $\triangle ANG = 51$. $AN =$ _____

**6.** $\triangle ABC$ is equilateral, $\triangle ACD$ is isosceles with base $\overline{AC}$, perimeter $\triangle ABC = 66$, and perimeter $\triangle ACD = 82$. Perimeter $ABCD =$ _____



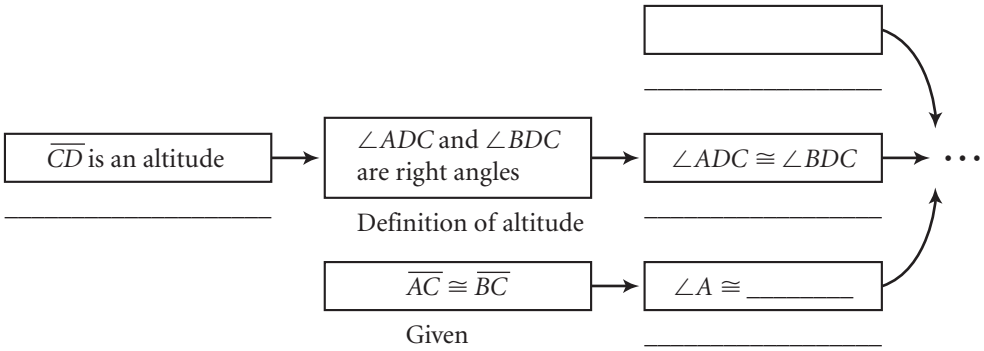

**7.** Complete a flowchart proof for this conjecture: In an isosceles triangle, the altitude from the vertex angle is the median to the base.



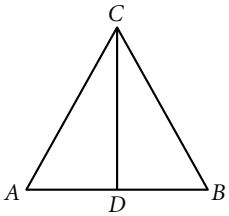

**Given:** Isosceles $\triangle ABC$ with $\overline{AC} \cong \overline{BC}$ and altitude $\overline{CD}$

**Show:** $\overline{CD}$ is a median

**Flowchart Proof**




**8.** Write a flowchart proof for this conjecture: In an isosceles triangle, the median to the base is also the angle bisector of the vertex angle.




**Given:** Isosceles $\triangle ABC$ with $\overline{AC} \cong \overline{BC}$ and median $\overline{CD}$

**Show:** $\overline{CD}$ bisects $\angle ACB$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