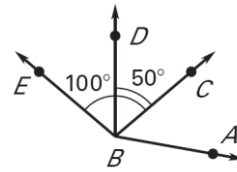


In Exercises 1–3, complete the proof.

1. **GIVEN:** $\angle ABC \cong \angle CBD$, $m\angle CBD = 50^\circ$, $m\angle CBE = 100^\circ$
PROVE: $m\angle ABC \cong \angle DBE$

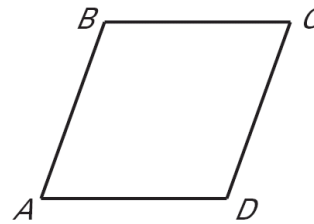


Statements	Reasons
1. $\angle ABC \cong \angle CBD$, $m\angle CBD = 50^\circ$, $m\angle CBE = 100^\circ$	1. _____
2. _____ = $m\angle CBE$	2. Angle Addition Postulate
3. $50^\circ + m\angle DBE = 100^\circ$	3. _____
4. $m\angle DBE = 50^\circ$	4. _____
5. $m\angle CBD =$ _____	5. Substitution Property of Equality
6. _____	6. Definition of congruent angles
7. $\angle ABC \cong \angle DBE$	7. _____

2. The lengths of the sides of quadrilateral $ABCD$ are equal. Prove that the perimeter of $ABCD$ is equal to $4AB$.

GIVEN: $\overline{AB} \cong \overline{BC}$, $\overline{BC} \cong \overline{CD}$, $\overline{CD} \cong \overline{AD}$

PROVE: Perimeter of $ABCD = 4AB$

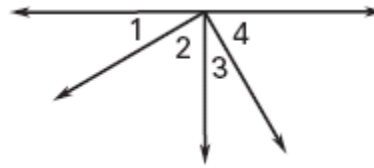


Statements	Reasons
1. $\overline{AB} \cong \overline{BC}$, $\overline{BC} \cong \overline{CD}$, $\overline{CD} \cong \overline{AD}$	1. _____
2. $AB = BC$, $BC = CD$, $CD = AD$	2. _____
3. $AB = CD$, $AB = AD$	3. _____
4. Perimeter of $ABCD = AB + BC +$ $CD + AD$	4. _____
5. _____	5. Substitution Property of Equality
6. _____	6. Simplify.

3. **GIVEN:** $\angle 1$ and $\angle 2$ are complementary.

$$\angle 1 \cong \angle 3, \angle 2 \cong \angle 4$$

PROVE: $\angle 3$ and $\angle 4$ are complementary.



Statements	Reasons
1. $\angle 1$ and $\angle 2$ are complementary.	1. _____
2. $m\angle 1 + m\angle 2 = 90^\circ$	2. _____
3. $\angle 1 \cong \angle 3, \angle 2 \cong \angle 4$	3. _____
4. $m\angle 1 = m\angle 3, m\angle 2 = m\angle 4$	4. _____
5. $m\angle 3 + m\angle 2 = 90^\circ$	5. _____
6. $m\angle 3 + m\angle 4 = 90^\circ$	6. _____
7. $\angle 3$ and $\angle 4$ are complementary.	7. _____

In Exercised 4-5, write a two-column proof.

4. Use the given information to draw a diagram and then prove the statement.

GIVEN: $\overline{NO} \cong \overline{PQ}$, M is the midpoint of \overline{NO} . M is the midpoint of \overline{PQ} .

PROVE: $\overline{NM} \cong \overline{PM}$

5. **GIVEN:** $\angle LPM \cong \angle MNO$,

$$\angle MNO \cong \angle MPO$$

PROVE: $MP \perp LO$

