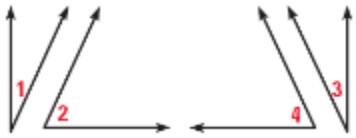
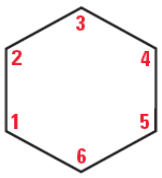
Name_____ Geometry 2-6 Angle Proofs Worksheet

1. **Given:** $\measuredangle 1$ and $\measuredangle 2$ are complements
$\measuredangle 3$ and $\measuredangle 4$ are complements
$\measuredangle 2 \cong \measuredangle 4$
Prove: $\measuredangle 1 \cong \measuredangle 3$



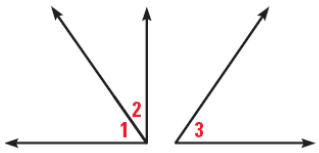
Statements	Reasons
1. $\measuredangle 1$ and $\measuredangle 2$ are complements $\measuredangle 3$ and $\measuredangle 4$ are complements $\measuredangle 2 \cong \measuredangle 4$	1.
2. $m\angle 2 = m\angle 4$	2.
3. $m\measuredangle 1 + m\measuredangle 2 = 90, m\measuredangle 3 + m\measuredangle 4 = 90$	3.
4. $m\measuredangle 1 + m\measuredangle 2 = m\measuredangle 3 + m\measuredangle 4$	4.
5. $m\measuredangle 1 + m\measuredangle 4 = m\measuredangle 3 + m\measuredangle 4$	5.
5. $m\angle 1 = m\angle 3$	5.
6. $\measuredangle 1 \cong \measuredangle 3$	6.

2. **Given:** $m\angle 3 = 120, \angle 1 \cong \angle 4, \angle 3 \cong \angle 4$
Prove: $m\angle 1 = 120$



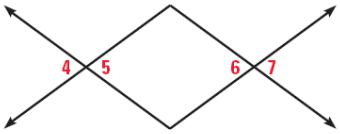
Statements	Reasons
1. $m\angle 3 = 120, \angle 1 \cong \angle 4,$ $\angle 3 \cong \angle 4$	1.
2.	2. Transitive Property
3. $m\measuredangle 1 = m\measuredangle 3$	3.
4. $m\angle 1 = 120$	4.

3. **Given:** $\angle 3$ and $\angle 2$ are complementary, $m\angle 1 + m\angle 2 = 90°$
Prove: $\angle 1 \cong \angle 3$



Statements	Reasons
1. $\angle 3$ and $\angle 2$ are complementary, $m\angle 1 + m\angle 2 = 90°$	1.
2.	2. Definition of Complementary $\angle's$
3. $m\angle 1 + m\angle 2 =\ m\angle 3 + m\angle 2$	3.
4.	4. Subtraction Property of Equality
5. $\angle 1 \cong \angle 3$	5.

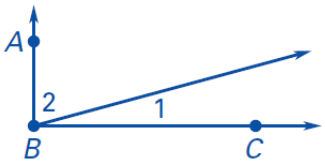
4. **Given**: $\angle 5 \cong \angle 6$
Prove: $\angle 4 \cong \angle 7$



Statements	Reasons
1. $\angle 5 \cong \angle 6$	1.
2. $\angle 4 \cong \angle 5$ and $\angle 6 \cong \angle 7$	2.
3. $\angle 4 \cong \angle 6$	3.
4. $\angle 4 \cong \angle 7$	4.

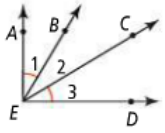
5. **Given:** $AB \perp BC$

Prove: $\angle 1$ and $\angle 2$ are complementary



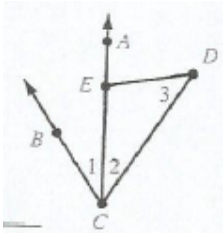
Statements	Reasons
1. $\overline{AB} \perp \overline{BC}$	1.
2. $\angle ABC$ is a right angle	2.
3. $m\angle ABC = 90$	3.
4. $m\angle 1 + m\angle 2 = m\angle ABC$	4.
5. $m\angle 1 + m\angle 2 = 90$	5.
6. $\angle 1$ and $\angle 2$ are complementary	6.

6. **Given:** $m\angle 1 = m\angle 3$
Prove: $m\angle AEC = m\angle DEB$



Statements	Reasons
1) $m\angle 1 = m\angle 3$	1)
2) $m\angle 2 = m\angle 2$	2)
3) $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 2$	3)
4) $m\angle 1 + m\angle 2 = m\angle AEC$	4)
5) $m\angle 2 + m\angle 3 = m\angle BED$	5)
6) $m\angle AEC = m\angle BED$	6)

7. **Given:** $\overrightarrow{CA}$ bisects $\angle BCD, \angle 2 \cong \angle 3$
Prove: $\angle 1 \cong \angle 3$



Statements	Reasons
1) $\overrightarrow{CA}$ bisects $\angle BCD$	1)
2) $\angle 1 \cong \angle 2$	2)
3) $\angle 2 \cong \angle 3$	3)
4) $\angle 1 \cong \angle 3$	4)