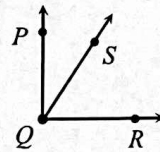


## 2.5 ANGLES proofs HOMEWORK

# ANGLE PROOFS

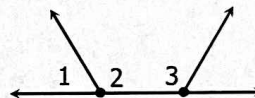
**Directions:** Complete the proofs below by giving the missing statements and reasons.

- 1** **Given:**  $\angle PQR$  is a right angle  
**Prove:**  $\angle PQS$  and  $\angle SQR$  are complementary



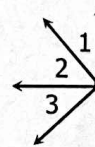
Statements	Reasons
1. $\angle PQR$ is a right angle	1.
2. $m\angle PQR = 90^\circ$	2.
3. $m\angle PQS + m\angle SQR = m\angle PQR$	3.
4. $m\angle PQS + m\angle SQR = 90^\circ$	4.
5. $\angle PQS$ and $\angle SQR$ are complementary	5.

- 2** **Given:**  $\angle 2 \cong \angle 3$ ;  $\angle 1$  and  $\angle 2$  form a linear pair  
**Prove:**  $\angle 1$  and  $\angle 3$  are supplementary



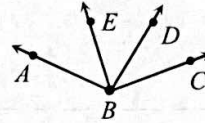
Statements	Reasons
1. $\angle 2 \cong \angle 3$	1.
2. $m\angle 2 = m\angle 3$	2.
3. $\angle 1$ and $\angle 2$ form a linear pair	3.
4. $\angle 1$ and $\angle 2$ are supplementary	4.
5. $m\angle 1 + m\angle 2 = 180^\circ$	5.
6. $m\angle 1 + m\angle 3 = 180^\circ$	6.
7. $\angle 1$ and $\angle 3$ are supplementary	7.

- 3** **Given:**  $\angle 1$  and  $\angle 2$  form a right angle;  $m\angle 1 + m\angle 3 = 90^\circ$   
**Prove:**  $\angle 2 \cong \angle 3$



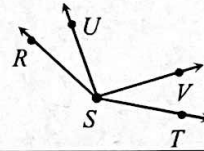
Statements	Reasons
1. $\angle 1$ and $\angle 2$ form a right angle	1.
2. $\angle 1$ and $\angle 2$ are complementary	2.
3. $m\angle 1 + m\angle 3 = 90^\circ$	3.
4. $\angle 1$ and $\angle 3$ are complementary	4.
5. $\angle 2 \cong \angle 3$	5.

- 4 **Given:**  $\overline{BE}$  bisects  $\angle ABD$ ;  $\overline{BD}$  bisects  $\angle EBC$   
**Prove:**  $\angle ABE \cong \angle DBC$



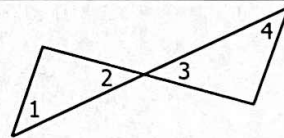
Statements	Reasons
1. $\overline{BE}$ bisects $\angle ABD$	1.
2. $\angle ABE \cong \angle EBD$	2.
3. $\overline{BD}$ bisects $\angle EBC$	3.
4. $\angle EBD \cong \angle DBC$	4.
5. $\angle ABE \cong \angle DBC$	5.

- 5 **Given:**  $\angle RSU \cong \angle VST$   
**Prove:**  $\angle RSV \cong \angle UST$



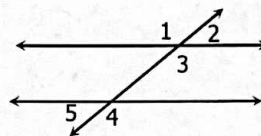
Statements	Reasons
1. $\angle RSU \cong \angle VST$	1.
2. $m\angle RSU = m\angle VST$	2.
3. $m\angle RSU + m\angle USV = m\angle RSV$	3.
4. $m\angle VST + m\angle USV = m\angle UST$	4.
5. $m\angle RSU + m\angle USV = m\angle UST$	5.
6. $m\angle RSV = m\angle UST$	6.
7. $\angle RSV \cong \angle UST$	7.

- 6 **Given:**  $\angle 1$  and  $\angle 2$  are complementary  
 $\angle 3$  and  $\angle 4$  are complementary  
**Prove:**  $\angle 1 \cong \angle 4$



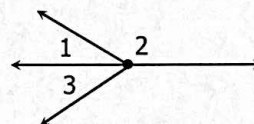
Statements	Reasons
1. $\angle 1$ and $\angle 2$ are complementary	1.
2. $\angle 3$ and $\angle 4$ are complementary	2.
3. $m\angle 1 + m\angle 2 = 90^\circ$	3.
4. $m\angle 3 + m\angle 4 = 90^\circ$	4.
5. $\angle 2 \cong \angle 3$	5.
6. $m\angle 2 = m\angle 3$	6.
7. $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 4$	7.
8. $m\angle 1 + m\angle 3 = m\angle 3 + m\angle 4$	8.
9. $m\angle 1 = m\angle 4$	9.
10. $\angle 1 \cong \angle 4$	10.

- 7 **Given:**  $\angle 1 \cong \angle 4$ ;  $\angle 4$  and  $\angle 5$  form a linear pair  
**Prove:**  $\angle 1$  and  $\angle 5$  are supplementary



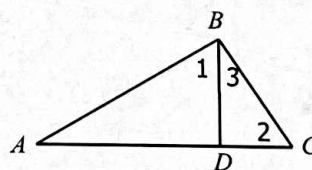
Statements	Reasons
1. $\angle 1 \cong \angle 4$	1.
2.	2. Definition of Congruence
3.	3. Given
4. $\angle 4$ and $\angle 5$ are supplementary	4.
5.	5. Definition of Supplementary Angles
6.	6. Substitution
7. $\angle 1$ and $\angle 5$ are supplementary	7.

- 8 **Given:**  $\angle 1$  and  $\angle 2$  form a linear pair;  $m\angle 2 + m\angle 3 = 180^\circ$   
**Prove:**  $\angle 1 \cong \angle 3$



Statements	Reasons
1. $\angle 1$ and $\angle 2$ form a linear pair	1.
2.	2. The Supplement Theorem
3.	3. Given
4.	4. Definition of Supplementary Angles
5. $\angle 1 \cong \angle 3$	5.

- 9 **Given:**  $\overline{AB} \perp \overline{BC}$ ;  $\angle 2$  and  $\angle 3$  are complementary  
**Prove:**  $\angle 1 \cong \angle 2$



Statements	Reasons
1. $\overline{AB} \perp \overline{BC}$	1.
2. $\angle ABC$ is a right angle	2.
3.	3. Definition of a Right Angle
4. $m\angle 1 + m\angle 3 = m\angle ABC$	4.
5. $m\angle 1 + m\angle 3 = 90^\circ$	5.
6.	6. Definition of Complementary Angles
7.	7. Given
8. $\angle 1 \cong \angle 2$	8.