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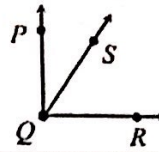
Directions: Complete the proofs below by giving the missing statements and reasons.

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. given
2. $m\angle PQR = 90°$	2. def. of right angle
3. $m\angle PQS + m\angle SQR = m\angle PQR$	3. angle addition postulate
4. $m\angle PQS + m\angle SQR = 90°$	4. substitution
5. $\angle PQS$ and $\angle SQR$ are complementary	5. def. of complementary

② **Given:** $\angle 2 \cong \angle 3$; $\angle 1$ and $\angle 2$ form a linear pair
Prove: $\angle 1$ and $\angle 3$ are supplementary
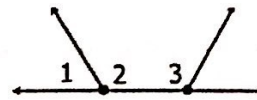
Statements	Reasons
1. $\angle 2 \cong \angle 3$	1. given
2. $m\angle 2 = m\angle 3$	2. def. of congruence
3. $\angle 1$ and $\angle 2$ form a linear pair	3. given
4. $\angle 1$ and $\angle 2$ are supplementary	4. linear pair postulate
5. $m\angle 1 + m\angle 2 = 180°$	5. def. of supplementary
6. $m\angle 1 + m\angle 3 = 180°$	6. substitution
7. $\angle 1$ and $\angle 3$ are supplementary	7. def. of supplementary

③ **Given:** $\angle 1$ and $\angle 2$ form a right angle; $m\angle 1 + m\angle 3 = 90°$
Prove: $\angle 2 \cong \angle 3$
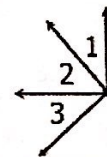
Statements	Reasons
1. $\angle 1$ and $\angle 2$ form a right angle	1. given
2. $m\angle 1 + m\angle 2 = 90°$	2. def. of right angle
3. $\angle 1$ and $\angle 2$ are complementary	3. def. of complementary
4. $m\angle 1 + m\angle 3 = 90°$	4. given
5. $\angle 1$ and $\angle 3$ are complementary	5. def. of complementary
6. $\angle 2 \cong \angle 3$	6. Congruent complements theorem