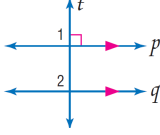
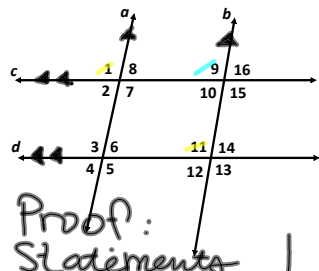


Given: $p \parallel q, t \perp p$
Prove: $t \perp q$
Proof:



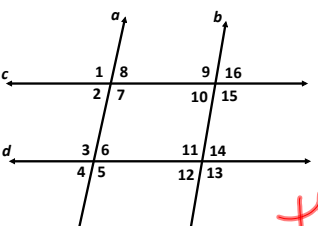
Statements	Reasons
1. $p \parallel q, t \perp p$	1. Given
2. $\angle 1$ is a right angle.	2. Definition of \perp lines
3. $m\angle 1 = 90$	3. Definition of right angle
4. $\angle 1 \cong \angle 2$	4. Corresponding Angles Postulate
5. $m\angle 1 = m\angle 2$	5. Definition of congruent angles
6. $m\angle 2 = 90$	6. Substitution Property
7. $\angle 2$ is a right angle.	7. Definition of right angles
8. $t \perp q$	8. Definition of \perp lines



Given: $a \parallel b, c \parallel d$
 Prove: $\angle 1 \cong \angle 11$

Proof:

Statements	Reasons
$a \parallel b$	Given
$\angle 1 \cong \angle 9$	Corresponding \angle s post.
$c \parallel d$	Given
$\angle 9 \cong \angle 11$	Corresponding \angle s post.
$\angle 1 \cong \angle 11$	Transitive Prop. $\cong \angle$ s



Given: $m\angle 8 + m\angle 9 = 180$
 Prove: $\angle 8 \cong \angle 10$

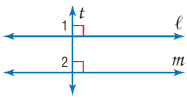
*m $\angle 8 + m\angle 9 = 180$
 this one for HW
 10/30*

3-5 Proving Lines Parallel (and Perpendicular)

Additional "Ingredients" for our proofs
 - that is, "Reasons"

- If corr. \angle s are \cong , then lines are \parallel .
- If alt. int. \angle s are \cong , then lines are \parallel .
- If cons. int. \angle s are suppl., then lines are \parallel .
- If alt. ext. \angle s are \cong , then lines are \parallel .
- If 2 lines are \perp to the same line, then lines are \parallel .

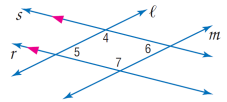
Given: $\ell \perp t$
 $m \perp t$
Prove: $\ell \parallel m$



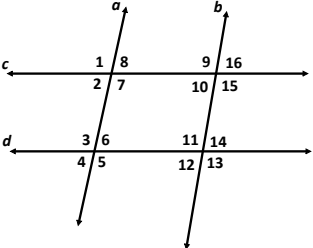
Proof:

Statements	Reasons
1. $\ell \perp t, m \perp t$	1. ?
2. $\angle 1$ and $\angle 2$ are right angles.	2. ?
3. $\angle 1 \cong \angle 2$	3. ?
4. $\ell \parallel m$	4. ?

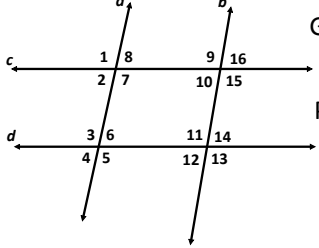
Given: $r \parallel s; \angle 5 \cong \angle 6$
Prove: $\ell \parallel m$
Proof:



Statements	Reasons
1. $r \parallel s; \angle 5 \cong \angle 6$	1. Given
2. $\angle 4$ and $\angle 5$ are supplementary.	2. Consecutive Interior Angle Theorem
3. $m\angle 4 + m\angle 5 = 180$	3. Definition of supplementary angles
4. $m\angle 5 = m\angle 6$	4. Definition of congruent angles
5. $m\angle 4 + m\angle 6 = 180$	5. Substitution
6. $\angle 4$ and $\angle 6$ are supplementary.	6. Definition of supplementary angles
7. $\ell \parallel m$	7. If cons. int. \angle are suppl., then lines are \parallel .



Given: $\angle 9 \cong \angle 13$
Prove: $c \parallel d$



Given: $c \parallel d \quad \angle 2 \cong \angle 12$
Prove: $a \parallel b$

Given: $a \perp b$ $\angle 1 \cong \angle 2$

Prove: $b \perp c$

Given: $a \perp b$ $b \perp c$

Prove: $a \parallel c$

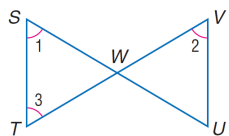
Given: $a \parallel c$ $c \parallel d$

Prove: $\angle 6 \cong \angle 12$

Given: $a \parallel c \parallel d$

Prove:
 $\angle 12, \angle 2, \angle 10, \angle 4, \angle 8, \angle 6$
 are all congruent.

Given: $\angle 2 \cong \angle 1$
 $\angle 1 \cong \angle 3$
Prove: $\overline{ST} \parallel \overline{UV}$



Given: $\overline{JM} \parallel \overline{KN}$
 $\angle 1 \cong \angle 2$
 $\angle 3 \cong \angle 4$
Prove: $\overline{KM} \parallel \overline{LN}$

