

Name, Date, Hour:

Key

Learning Target:

2.7: Prove angle pair relationships

Homework:

2.7 WS

BOX 1 - A Theorem

Theorem 2.3
Right Angles
Congruence
Theorem

All right angles are \cong

BOX 2 - Proof of Theorem 2.3

Given: $\angle 1$ and $\angle 2$ are right angles.

Prove: $\angle 1 \cong \angle 2$

Statement

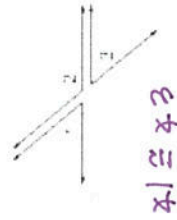
Reason

- | | |
|--|-------------------------------|
| 1. $\angle 1$ & $\angle 2$ are right \angle 's | 1. given |
| 2. $m\angle 1 = 90^\circ$, $m\angle 2 = 90^\circ$ | 2. Def of right \angle 's |
| 3. $m\angle 1 = m\angle 2$ | 3. Transitive Prop of = |
| 4. $\angle 1 \cong \angle 2$ | 4. Def of \cong \angle 's |

BOX 3 - Some more Theorems and Postulates

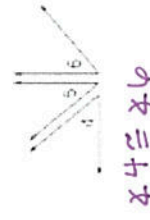
Theorem 2.4
Congruent
Supplements
Theorem

if two \angle 's are
supplementary to
the same \angle then
they are \cong .

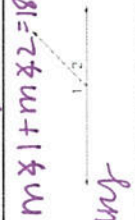


Theorem 2.5
Congruent
Complements
Theorem

if 2 \angle 's are
complementary to
the same \angle then
they are \cong



if two angles form
a linear pair, then
they are supplementary



Linear Pair
Postulate

BOX 4 - One last Theorem

Theorem 2.6
Vertical Angles
Congruence Theorem

vertical \angle 's
are \cong



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

BOX 5 - Proof of Theorem 2.4

Given: $\angle 1$ and $\angle 2$ are supplements
 $\angle 3$ and $\angle 2$ are supplements
Prove: $\angle 1 \cong \angle 3$



Statement	Reason
1. $\angle 1 + \angle 2$ are supplements $\angle 3 + \angle 2$ are supplements	1. given
2. $m\angle 1 + m\angle 2 = 180^\circ$	2. Def of supp.
3. $m\angle 3 + m\angle 2 = 180^\circ$	3. Def of supp.
4. $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 2$	4. Transitive Prop of =
5. $m\angle 1 = m\angle 3$	5. Subtraction
6. $\angle 1 \cong \angle 3$	6. Def of \cong 's

BOX 6 - Last proof!

Given: $\angle 4$ is a right angle
Prove: $\angle 2$ and $\angle 4$ are supplementary.



Statement	Reason
1. $\angle 4$ is a right \angle	1. given
2. $m\angle 4 = 90^\circ$	2. Def of \cong 's
3. $\angle 4 \cong \angle 2$	3. Vertical \angle \cong Thm
4. $m\angle 4 = m\angle 2$	4. Def of \cong 's
5. $m\angle 2 = 90^\circ$	5. Substitution
6. $m\angle 4 + m\angle 2 = 180^\circ$	6. Addition
7. $\angle 2$ & $\angle 4$ are supp.	7. Def of Supp \angle 's