# Proving Angles Congruent and Developing Proofs

Name: _____          Date: _____

Directions: Use your handheld to complete each of the following.

**Problem 1 Proving angles congruent**

**1. Define each of the following.**
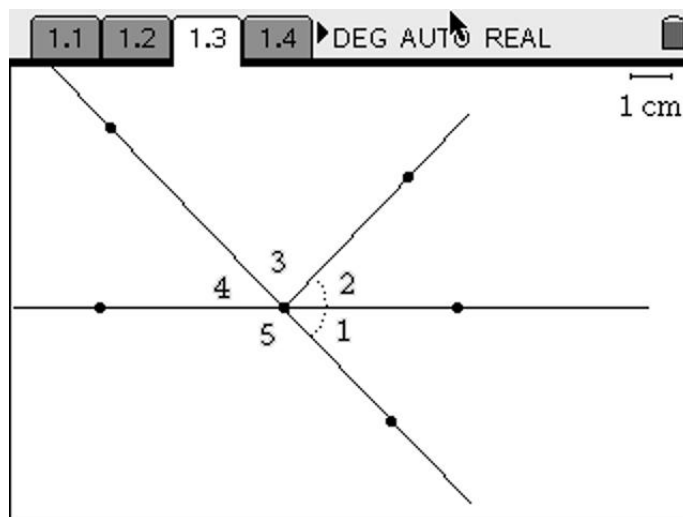
Vertical Angles –

Adjacent Angles –

Complementary angles –

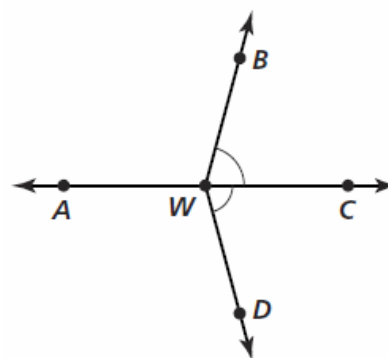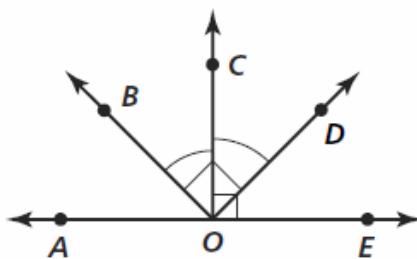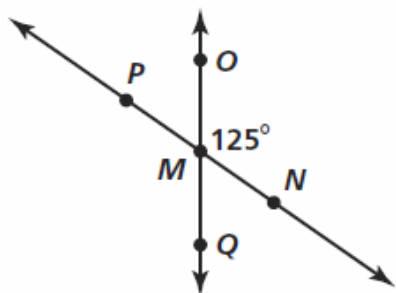Supplementary angles –

**2. Answer the questions on page 1.4 to 1.7. Record your answers below.**

1.4 = _____          1.6 = _____

1.5 = _____          1.7 = _____

**3. Write three conclusions that can be made from each diagram.**

## Problem 2 – Developing Proofs



what you know → Given: ~~~~~~~~
what you must show → Prove: ~~~~~~~~
diagram that shows what you know →

## Vertical Angle Theorem (2-1):  Vertical Angles are Congruent

Use the information below and page 2.5 to prove the Vertical Angle Theorem.

**Given:** $\angle 1$ and $\angle 2$ are vertical angles.

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

← what you know →

← what you show
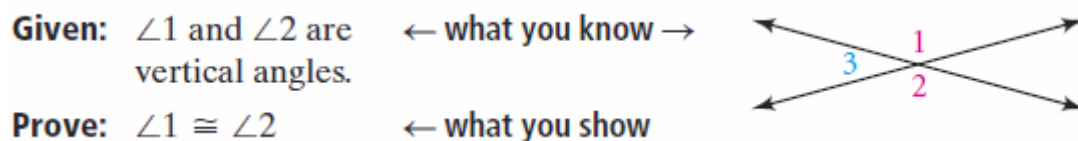


## Congruent Supplements Theorem (2-2): If two angles are supplements of the same angles (or of congruent angles), then the two angles are congruent.

Use the information below and page 2.6 to prove the Congruent Supplements theorem.

**Given:** $\angle 1$ and $\angle 2$ are supplementary.
$\angle 3$ and $\angle 2$ are supplementary.

**Prove:** $\angle 1 \cong \angle 3$
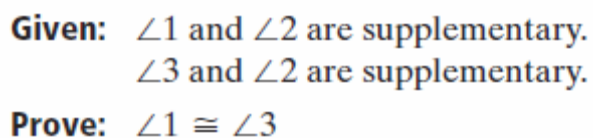
**Congruent Complements Theorem (2-3): If two angles are complements of the same angles (or of congruent angles), then the two angles are congruent.**

Use the information given below to write a proof of the congruent complements theorem on page 2.7 of your handheld.

**Given:** ∠1 and ∠2 are complementary.
∠3 and ∠2 are complementary.
**Prove:** ∠1 ≅ ∠3