A Right Angle Theorem - Lesson 4.3

Let's start today with the following warmup problem...you should be able to come up with a diagram, the "given" and "prove" statements and the proof!! The problem is to "Prove that the median to the base of an isosceles triangle is an altitude to the base." Once you've done that, you'll need to use measures of angles and equations to solve this one…a blast from the past!

Prove that the median to the base of an isosceles △ is an altitude to the base.

Given:

Prove:

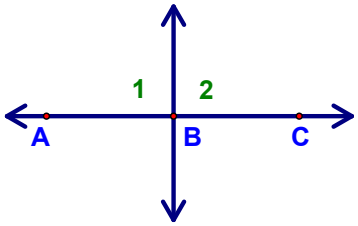
Statements	Reasons

OK, now that we've had that reminder of how much we disliked those theorem proofs that included measure of things and equations, let's do something about making sure we don't have to go back to them! The following theorem proof allows us to show that if two angles are both supplementary and congruent, then they must be right angles!

***Theorem 24*: If two ∠s are both supp. and ≅, then they are right ∠s**
(*Supplementary Congruent Right ∠ Theorem - SCRAT*)

Given: ∠1 ≅ ∠2

Prove: ∠1 & ∠2 are right ∠s

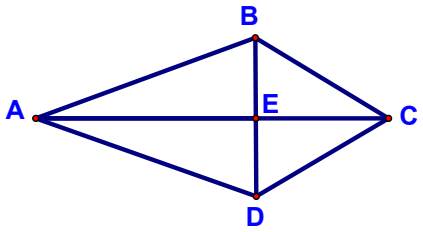


Statements	Reasons

Finally, let's do an example of how this theorem might be used in a proof...there are many other examples in the homework for this section...

Given: $\overline{AB} \cong \overline{AD}$; $\overline{BC} \cong \overline{CD}$

Prove: $\overleftrightarrow{AC}$ is the $\perp$ bisector of $\overline{BD}$



Statements	Reasons