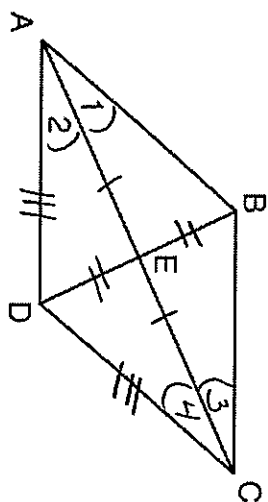**Quadrilateral Proofs HW ~ Answer Key**

Given: Quadrilateral $ABCD$ with diagonals $\overline{AC}$ and $\overline{BD}$ that bisect each other, and $\angle 1 \cong \angle 2$

Prove: $\triangle ACD$ is an isosceles triangle and $\triangle AEB$ is a right triangle

S	R
1) $\overline{AC}$ and $\overline{BD}$ bisect each other	1) Given
2) $ABCD$ is a parallelogram	2) Quad w/ diagonals that bisect each other is a parallelogram
3) $\overline{AB} \parallel \overline{CD}$, $\overline{BC} \parallel \overline{AD}$	3) Opp. sides of a parallelogram
4) $\angle 1 \cong \angle 4$, $\angle 2 \cong \angle 3$	4) When lines are $\parallel$, alt int $\angle$'s $\cong$
5) $\angle 2 \cong \angle 4$	5) Transitive property (or substitution)
6) $\overline{AD} \cong \overline{DC}$	6) In a $\triangle$, sides opp $\cong \angle$'s are $\cong$
7) $\triangle ADC$ is isosceles	7) An isosceles $\triangle$ has $2 \cong$ sides
8) $ABCD$ is a rhombus	8) A parallelogram with one pair of adjacent sides is a rhombus
9) $\overline{BD} \perp \overline{AC}$	9) Diagonals of a rhombus are $\perp$
10) $\angle BEA$ is a right $\angle$	10) $\perp$ lines form right $\angle$'s
11) $\triangle AEB$ is a right $\triangle$	11) A right $\triangle$ has one right $\angle$