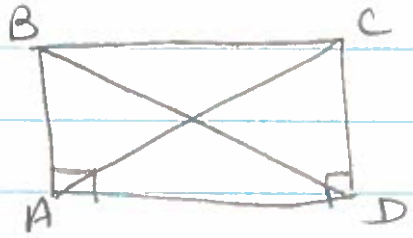
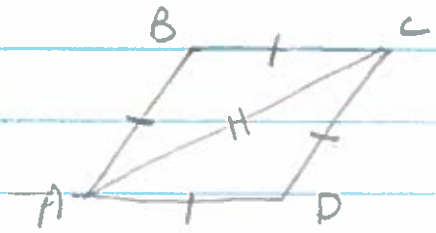
5.4

(32) G: ABCD is rectangle
P: $\overline{AC} \cong \overline{BD}$



1. ABCD is rect.	1. Given
2. $\angle BAD$ rt. $\angle$ $\angle CDA$ rt. $\angle$	2. def. rect.
3. $\angle BAD \cong \angle CDA$	3. All rt. $\angle$s $\cong$
4. $\overline{BA} \cong \overline{CD}$	4. Opp. sides $\square$ $\cong$
5. $\overline{AD} \cong \overline{AD}$	5. Reflexive
6. $\triangle BAD \cong \triangle CDA$	6. SAS
7. $\overline{AC} \cong \overline{BD}$	7. CPCTC

(33) G.: ABCD is rhombus
P: $\overline{AC}$ bisects $\angle BAD + \angle BCD$



1. ABCD is rhombus	1. Given
2. $\overline{AB} \cong \overline{BC} \cong \overline{CD} \cong \overline{AD}$	2. Def. rhombus
3. $\overline{AC} \cong \overline{AC}$	3. Reflexive
4. $\triangle ABC \cong \triangle ADC$	4. SSS
5. $\angle BAC \cong \angle DAC$ $\angle BCA \cong \angle DCA$	5. CPCTC
6. $\overline{AC}$ bisects $\angle BAD + \angle BCD$	6. def. bisect