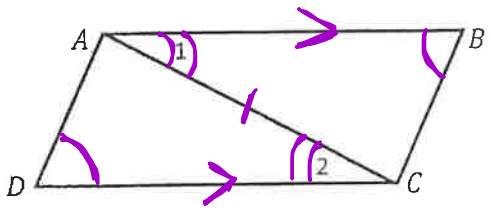
Math 2
Unit 6 –Triangles & Congruence
Lesson 3 → Triangle Congruence Proofs

Name _____
Date _____ Pd _____

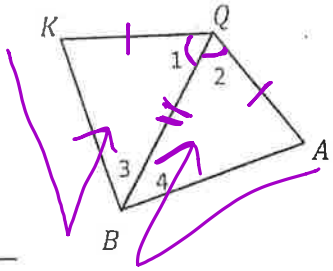
Fill in the missing statements and reasons.



1. Given: $\overline{AB} \parallel \overline{DC}$, $\angle B \cong \angle D$
Prove: $\overline{BC} \cong \overline{DA}$

Statements	Reasons
1. $\overline{AB} \parallel \overline{DC}$, $\angle B \cong \angle D$	1. Given
2. $\angle 1 \cong \angle 2$	2. Alternate Interior ∠'s ≅
3. $\overline{AC} \cong \overline{AC}$	3. Reflexive Property of ≅
4. $\Delta ABC \cong \Delta CDA$	4. AAS Congruence
5. $\overline{BC} \cong \overline{DA}$	5. CPCTC

2. Given: $\overline{QK} \cong \overline{QA}$, $\overline{QB}$ bisects $\angle KQA$
Prove: $\overline{KB} \cong \overline{AB}$



Statements	Reasons
1. $\overline{QK} \cong \overline{QA}$, $\overline{QB}$ bisects $\angle KQA$	1. Given
2. $\angle 1 \cong \angle 2$	2. Definition of Angle Bisector
3. $\overline{QB} \cong \overline{QB}$	3. Reflexive Property of Congruence
4. $\Delta KBQ \cong \Delta ABQ$	4. SAS Congruence
5. $\overline{KB} \cong \overline{AB}$	5. CPCTC

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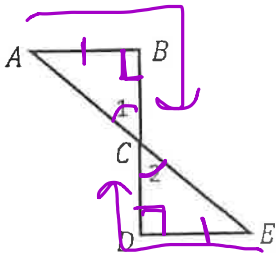
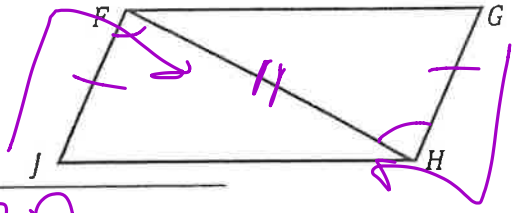
3. Given: $\overline{BD} \perp \overline{AB}$, $\overline{BD} \perp \overline{DE}$, $\overline{AB} \cong \overline{DE}$
Prove: $\angle A \cong \angle E$



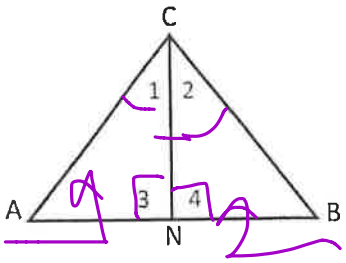
Statements	Reasons
1. $\overline{BD} \perp \overline{AB}$, $\overline{BD} \perp \overline{DE}$, $\overline{AB} \cong \overline{DE}$	1. Given
2. $\angle B$ & $\angle D$ are right angles	2. Definition of Perpendicular Lines
3. $\angle B \cong \angle D$	3. All right angles are congruent
4. $\angle 1 \cong \angle 2$	4. Vertical ∠'s ≅
5. $\Delta ABC \cong \Delta EDC$	5. AAS Congruence
6. $\angle A \cong \angle E$	6. CPCTC

4. **Given:** $\overline{FJ} \cong \overline{GH}$, $\angle JFH \cong \angle GHF$
Prove: $\overline{FG} \cong \overline{JH}$



Statements	Reason
1. _____	1. Given
2. $\overline{FH} \cong \overline{HF}$	2. Reflexive Prop $\cong$
3. Δ JFH $\cong \Delta$ GHF	3. SAS Congruence
4. FG $\cong$ JH	4. CPCTC

8.14



6. **Given:** $\overline{CN} \perp \overline{AB}$, $\overline{CN}$ bisects $\angle ACB$
Prove: $\overline{AC} \cong \overline{CB}$

Statements	Reasons
1. _____	1. Given
2. $\angle 3$ & $\angle 4$ are right angles	2. Definition of $\perp$ lines
3. $\angle 3 \cong \angle 4$	3. All right angles are $\cong$
4. $\angle 1 \cong \angle 2$	4. Definition of Angle bisector
5. $\overline{CN} \cong \overline{CN}$	5. Reflexive
6. $\Delta ANC \cong \Delta$ BNC	6. ASA Congruence
7. $\overline{AC} \cong \overline{CB}$	7. CPC

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