GEOMETRY **Name**_____

Section 3.3: Segment Proofs

Match the statement with the Property of Congruence.

1. $For\ any\ segment\ \overline{XY},\ \overline{XY} \cong \overline{XY}.$ A. Transitive Property

2. $If\ \overline{JK} \cong \overline{MN}\ and\ \overline{MN} \cong \overline{CD},\ then\ \overline{JK} \cong \overline{CD}.$ B. Symmetric Property

3. $If\ \overline{BN} \cong \overline{TR},\ then\ \overline{TR} \cong \overline{BN}.$ C. Reflexive Property

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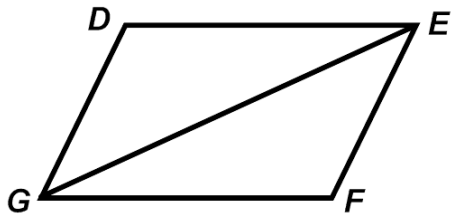
Complete the proof.

4. Given: $DG = 8$
$GF = 8$
$\overline{GF} \cong \overline{EF}$

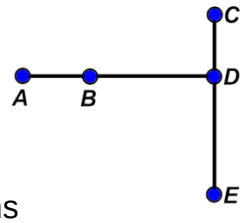
Prove: $\overline{DG} \cong \overline{EF}$



Statements	Reasons

5. Given: $\overline{AB} \cong \overline{CD}$
$\overline{BD} \cong \overline{DE}$

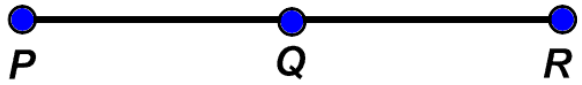
Prove: $\overline{AD} \cong \overline{CE}$



Statements	Reasons

6. Given: $Point\ Q\ is\ the\ midpoint\ of\ \overline{PR}$

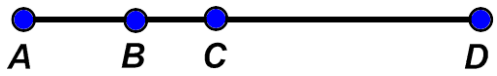
Prove: $QR = \frac{1}{2}PR$



Statements	Reasons

7. Given: $\overline{AD}$

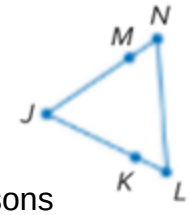
Prove: $AD = AB + BC + CD$



Statements	Reasons

8. Given: $\overline{LK} \cong \overline{NM}$
$\overline{KJ} \cong \overline{MJ}$

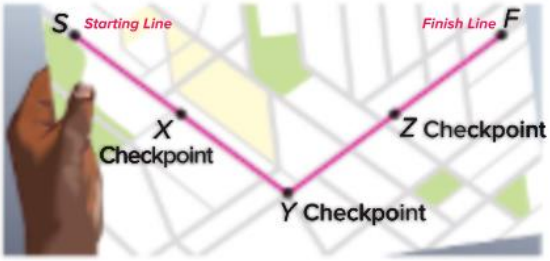
Prove: $\overline{LJ} \cong \overline{NJ}$



Statements	Reasons

9. Given: $Point\ X\ is\ the\ midpoint\ of\ \overline{SY}$
$Point\ Z\ is\ the\ midpoint\ of\ \overline{YF}$
$XY = YZ$

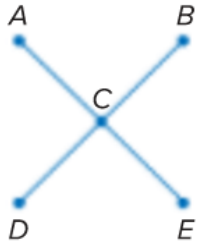
Prove: $\overline{ZF} \cong \overline{SX}$



Statements	Reasons

10. Given: $Point\ C\ is\ the\ midpoint\ of\ \overline{AE}$
$Point\ C\ is\ the\ midpoint\ of\ \overline{BD}$
$\overline{AE} \cong \overline{BD}$

Prove: $\overline{AC} \cong \overline{CD}$



Statements	Reasons

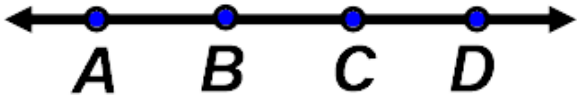
11. Given: $AD = 2AB + BC$

Prove: $\overline{AB} \cong \overline{CD}$

Statements	Reasons

12. Given: $\cdot\ B\ is\ the\ midpoint\ of\ \overline{AC}$

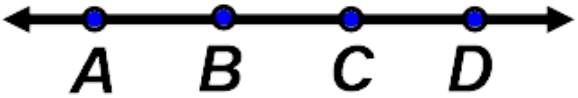
Prove: $AB + CD = BD$



Statements	Reasons

13. Given: $\cdot\ B\ is\ between\ points\ A\ and\ D$
$\cdot\ C\ is\ between\ points\ A\ and\ D$

Prove: $AB + BD = AC + CD$



Statements	Reasons