GEOMETRY - HW#21 **Name**_____
Section 2.5A: Proving Segment Relationships **Date**_____**Period**_____

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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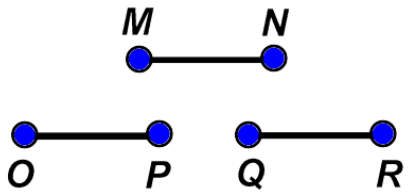
Complete the argument, giving a reason for each step.

4. Given: $OP = MN$
$MN = QR$

Prove: $\overline{OP} \cong \overline{QR}$



Statements	Reasons
1. $OP = MN$	1. _____
2. $MN = QR$	2. _____
3. $OP = QR$	3. _____
4. $\overline{OP} \cong \overline{QR}$	4. _____

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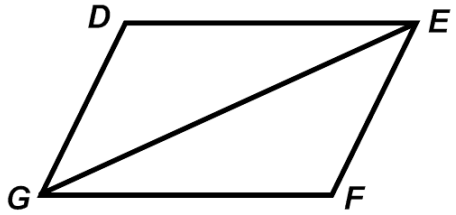
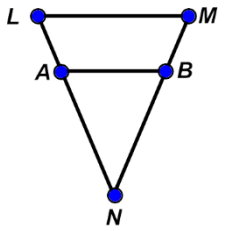
5. Given: $DG = 8$
$GF = 8$
$\overline{GF} \cong \overline{EF}$

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



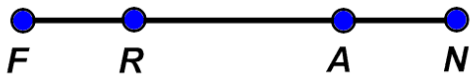
Statements	Reasons
1. $DG = 8$	1. _____
2. $GF = 8$	2. _____
3. $DG = GF$	3. _____
4. $\overline{DG} \cong \overline{GF}$	4. _____
5. $\overline{GF} \cong \overline{EF}$	5. _____
6. $\overline{DG} \cong \overline{EF}$	6. _____

6. Given: $NL = NM$
$AL = BM$
Prove: $\overline{NA} \cong \overline{NB}$



Statements	Reasons
1. $NL = NM$	1. _____
2. $AL = BM$	2. _____
3. $NL = NA + AL$	3. _____
4. $NL - AL = NA$	4. _____
5. $NM = NB + BM$	5. _____
6. $NM - BM = NB$	6. _____
7. $NL - AL = NB$	7. _____
8. $NA = NB$	8. _____
9. $\overline{NA} \cong \overline{NB}$	9. _____

7. Given: $\overline{FR} \cong \overline{AN}$
Prove: $\overline{FA} \cong \overline{RN}$



Statements	Reasons
1. $\overline{FR} \cong \overline{AN}$	1. _____
2. $FR = AN$	2. _____
3. $RA = RA$	3. _____
4. $FR + RA = AN + RA$	4. _____
5. $FR + RA = FA$	5. _____
6. $AN + RA = RN$	6. _____
7. $FA = RN$	7. _____
8. $\overline{FA} \cong \overline{RN}$	8. _____