**Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Geometry Honors Unit 2, Day 07 HW

2-7 Proving Segment Relationships

 **Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Block\_\_\_\_\_\_**

**1-9: Justify each statement with a property of equality, a property of congruence, or a postulate.**

**1.** *QA* = *QA*

**2.** If AB = CD, then .

**3.** If $\overbar{AB}$ ≅$\overbar{BC}$and $\overbar{BC}$ ≅$\overbar{CE}$then $\overbar{AB}$ ≅$\overbar{CE}$.

**4.** If *Q* is between *P* and *R*, then *PQ* + *QR* = PR

**5.** If *AB* + *BC* = *EF* + *FG* and *AB* + *BC* = *AC*, then *EF* + *FG* = *AC*.

**6.** If MN = PQ, then MN + RS = PQ + RS.

**7.** If B is the midpoint of, then AB = BC.

**8.** If AB = CD, then CD = AB.

**9.** If AB + BD = AD and BD = RS, then AB + RS = AD.

**10-11: Complete each proof.**

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| GEO_CH02-43_01.jpg**10. Given:** *BC* = *DE* **Prove:** *AB* + *DE* = *AC*

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| **Statements** | **Reasons** |
| ***1.*** BC = DE | ***1.*** *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* |
| ***2.*** *\_\_\_\_\_­­­­\_\_\_\_\_\_\_\_\_\_* | ***2.*** Seg. Add. Post. |
| ***3.*** AB + DE = AC | ***3.*** *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* |

 | **11. Given:** $\overbar{AB}$ ≅$\overbar{CD}$ **Prove:** $\overbar{CD}$ ≅$\overbar{AB}$ **Proof:**

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| **Statements** | **Reasons** |
| **a.** \_\_\_\_\_\_\_\_\_\_ | **a.** Given |
| **b.** AB = CD | **b.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **c.** CD = AB | **c.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **d.** \_\_\_\_\_\_\_\_ | **d.** Definition of ≅ segments |

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**12-13: Complete each proof.**

**12. Given:** $\overbar{SU}$ ≅$\overbar{LR}$

$\overbar{TU}$ ≅ $\overbar{LN}$

 **Prove:** $\overbar{ST}$ ≅$\overbar{NR}$

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| **Statements** | **Reasons** |
| **a.** $\overbar{SU}$ ≅$\overbar{LR}$, $\overbar{TU}$ ≅$\overbar{LN}$ | **a.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **b.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | **b.** Definition of ≅ segments |
| **c.** *SU* = *ST* + *TU* *LR* = *LN* + *NR* | **c.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **d.** *ST* + *TU* = *LN* + *NR* | **d.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **e.** *ST* + *LN* = *LN* + *NR* | **e.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **f.** *ST* + *LN* – *LN* = *LN* + *NR* – *LN* | **f.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **g.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | **g.** Substitution Property |
| **h.** $\overbar{ST}$ ≅$\overbar{NR}$ | **h.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |



**13. Given:** $\overbar{AB}$ ≅$\overbar{DE}$

 *B* is the midpoint of $\overbar{AC}$.

 *E* is the midpoint of $\overbar{DF}$.

**Prove:** $\overbar{BC}$ ≅$\overbar{EF}$

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| **Statements** | **Reasons** |
| **a.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | **a.** Given |
| **b.** *AB* = *DE* | **b.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **c.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | **c.** Definition of Midpoint |
| **d.** *BC* = *DE* | **d.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **e.** *BC* = *EF* | **e.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **f.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | **f.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |