**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 ≅and ≅then ≅.

**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.

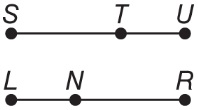
**8.** If AB = CD, then CD = AB.

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

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

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| GEO_CH02-43_01.jpg**10. Given:** *BC* = *DE*  **Prove:** *AB* + *DE* = *AC*     |  |  | | --- | --- | | **Statements** | **Reasons** | | ***1.*** BC = DE | ***1.*** *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* | | ***2.*** *\_\_\_\_\_­­­­\_\_\_\_\_\_\_\_\_\_* | ***2.*** Seg. Add. Post. | | ***3.*** AB + DE = AC | ***3.*** *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* | | **11. Given:**  ≅  **Prove:**  ≅  **Proof:**   |  |  | | --- | --- | | **Statements** | **Reasons** | | **a.** \_\_\_\_\_\_\_\_\_\_ | **a.** Given | | **b.** AB = CD | **b.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | **c.** CD = AB | **c.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | **d.** \_\_\_\_\_\_\_\_ | **d.** Definition of ≅ segments | |

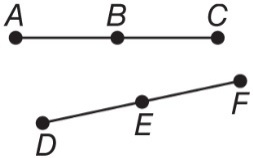
**12-13: Complete each proof.**

**12. Given:**  ≅

≅

**Prove:**  ≅

|  |  |
| --- | --- |
| **Statements** | **Reasons** |
| **a.**  ≅, ≅ | **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.**  ≅ | **h.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |



**13. Given:**  ≅

*B* is the midpoint of .

*E* is the midpoint of .

**Prove:**  ≅

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