

2.5 SEGMENTS proofs HOMEWORK

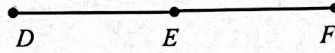
SEGMENTS PROOFS

Directions: Complete the proofs below by giving the missing statements and reasons.

1

Given: E is the midpoint of \overline{DF}

Prove: $2DE = DF$

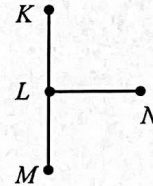


Statements	Reasons
1. E is the midpoint of \overline{DF}	1.
2. $DE = EF$	2.
3. $DE + DE = DE + EF$	3.
4. $2DE = DE + EF$	4.
5. $DE + EF = DF$	5.
6. $2DE = DF$	6.

2

Given: $\overline{KL} \cong \overline{LN}$, $\overline{LM} \cong \overline{LN}$

Prove: L is the midpoint of \overline{KM}

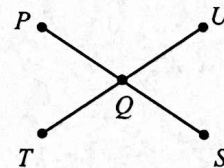


Statements	Reasons
1. $\overline{KL} \cong \overline{LN}$, $\overline{LM} \cong \overline{LN}$	1.
2. $KL = LN$, $LM = LN$	2.
3. $KL = LM$	3.
4. L is the midpoint of \overline{KM}	4.

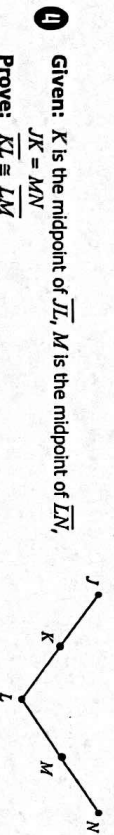
3

Given: $\overline{PQ} \cong \overline{TQ}$, $\overline{UQ} \cong \overline{QS}$

Prove: $\overline{PS} \cong \overline{TU}$



Statements	Reasons
1. $\overline{PQ} \cong \overline{TQ}$, $\overline{UQ} \cong \overline{QS}$	1.
2. $PQ = TQ$, $UQ = QS$	2.
3. $PQ + QS = PS$; $TQ + QU = TU$	3.
4. $TQ + QS = PS$	4.
5. $TQ + QS = TU$	5.
6. $PS = TU$	6.
7. $\overline{PS} \cong \overline{TU}$	7.



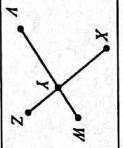
4 Given: K is the midpoint of \overline{JL} , M is the midpoint of \overline{LN} ,
 $\overline{JK} \cong \overline{MN}$
 Prove: $\overline{KL} \cong \overline{LM}$

Statements	Reasons
1. K is the midpoint of \overline{JL} , M is the midpoint of \overline{LN}	1.
2. $\overline{JK} \cong \overline{KL}$, $\overline{LM} \cong \overline{MN}$	2.
3. $\overline{JK} \cong \overline{MN}$	3.
4. $\overline{MN} \cong \overline{KL}$, $\overline{LM} \cong \overline{MN}$	4.
5. $\overline{LM} \cong \overline{KL}$	5.
6. $\overline{KL} \cong \overline{LM}$	6.
7. $\overline{KL} \cong \overline{LM}$	7.



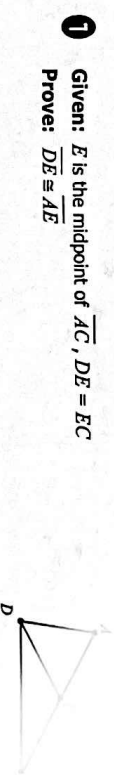
5 Given: $\overline{XY} \cong \overline{UV}$, $\overline{YZ} \cong \overline{TU}$
 Prove: $\overline{XZ} \cong \overline{TV}$

Statements	Reasons
1. $\overline{XY} \cong \overline{UV}$, $\overline{YZ} \cong \overline{TU}$	1.
2. $\overline{XY} + \overline{YZ} = \overline{XZ}$, $\overline{UV} + \overline{TU} = \overline{TV}$	2.
3. $\overline{XY} + \overline{YZ} = \overline{XZ}$, $\overline{TU} + \overline{UV} = \overline{TV}$	3.
4. $\overline{UV} + \overline{YZ} = \overline{XZ}$, $\overline{YZ} + \overline{UV} = \overline{TV}$	4.
5. $\overline{XZ} = \overline{TV}$	5.
6. $\overline{XZ} \cong \overline{TV}$	6.



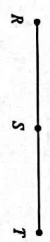
6 Given: $\overline{YW} \cong \overline{YZ}$, $\overline{XY} \cong \overline{VY}$
 Prove: $\overline{XZ} \cong \overline{VW}$

Statements	Reasons
1. $\overline{YW} \cong \overline{YZ}$, $\overline{XY} \cong \overline{VY}$	1.
2. $\overline{WY} = \overline{YZ}$, $\overline{XY} = \overline{VY}$	2.
3. $\overline{XY} + \overline{YZ} = \overline{XZ}$	3.
4. $\overline{VY} + \overline{YW} = \overline{XZ}$	4.
5. $\overline{VY} + \overline{YW} = \overline{VW}$	5.
6. $\overline{XZ} = \overline{VW}$	6.
7. $\overline{XZ} \cong \overline{VW}$	7.



7 Given: E is the midpoint of \overline{AC} , $DE = EC$
 Prove: $\overline{DE} \cong \overline{AE}$

Statements	Reasons
1. E is the midpoint of \overline{AC}	1.
2. Definition of Midpoint	2.
3. Given	3.
4. $\overline{AE} = \overline{DE}$	4.
5. Definition of Congruence	5.
6. $\overline{DE} \cong \overline{AE}$	6.



8 Given: $RS = \frac{1}{2}RT$
 Prove: S is the midpoint of \overline{RT}

Statements	Reasons
1. $RS = \frac{1}{2}RT$	1.
2. $2RS = RT$	2.
3. Segment Addition Postulate	3.
4. $2RS = RS + ST$	4.
5. $RS = ST$	5.
6. Definition of Midpoint	6.

9 Given: M is the midpoint of \overline{LN} ,
 N is the midpoint of \overline{MO}
 Prove: $\overline{LM} \cong \overline{NO}$



Statements	Reasons
1. M is the midpoint of \overline{LN}	1.
2. $\overline{LM} = \overline{MN}$	2. Definition of Midpoint
3. Given	3. Given
4. $\overline{MN} = \overline{NO}$	4.
5. Transitive Property of Equality	5. Transitive Property of Equality
6. Definition of Congruence	6. Definition of Congruence