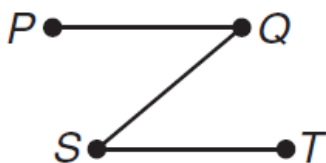


**State the property that justifies each statement.**

1. If  $80 = m\angle A$ , then  $m\angle A = 80$ .
2. If  $RS = TU$  and  $TU = YP$ , then  $RS = YP$ .
3. If  $7x = 28$ , then  $x = 4$ .
4. If  $VR + TY = EN + TY$ , then  $VR = EN$ .
5. If  $m\angle 1 = 30$  and  $m\angle 1 = m\angle 2$ , then  $m\angle 2 = 30$ .

**Write a two-column proof for the following.**

7. If  $\overline{PQ} \cong \overline{QS}$  and  $\overline{QS} \cong \overline{ST}$ , then  $PQ = ST$ .



Complete the following proof.

**6. Given:**  $8x - 5 = 2x + 1$

**Prove:**  $x = 1$

**Proof:**

Statements	Reasons
a. $8x - 5 = 2x + 1$	a. _____
b. $8x - 5 - 2x = 2x + 1 - 2x$	b. _____
c. _____	c. Substitution Property
d. _____	d. Addition Property
e. $6x = 6$	e. _____
f. $\frac{6x}{6} = \frac{6}{6}$	f. _____
g. _____	g. _____

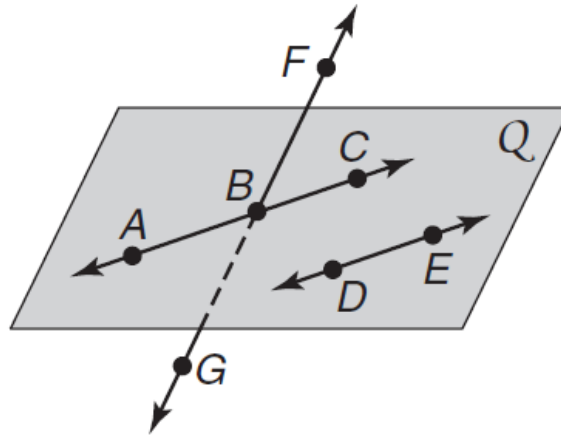
Use postulates to determine whether each statement is *always*, *sometimes*, or *never* true.

1. A line contains exactly one point.
2. Noncollinear points  $R$ ,  $S$ , and  $T$  are contained in exactly one plane.
3. Any two lines  $\ell$  and  $m$  intersect.
4. If points  $G$  and  $H$  are contained in plane  $\mathcal{M}$ , then  $\overline{GH}$  is perpendicular to plane  $\mathcal{M}$ .
5. Planes  $\mathcal{R}$  and  $\mathcal{S}$  intersect in point  $T$ .
6. If points  $A$ ,  $B$ , and  $C$  are noncollinear, then segments  $\overline{AB}$ ,  $\overline{BC}$ , and  $\overline{CA}$  are contained in exactly one plane.

In the figure,  $\overline{AC}$  and  $\overline{DE}$  are in plane  $Q$  and  $\overline{AC} \parallel \overline{DE}$ . State the postulate that can be used to show each statement is true.

7. Exactly one plane contains points  $F$ ,  $B$ , and  $E$ .

8.  $\overline{BE}$  lies in plane  $Q$ .



Justify each statement with a property of equality, a property of congruence, or a postulate.

1.  $QA = QA$

2. If  $\overline{AB} \cong \overline{BC}$  and  $\overline{BC} \cong \overline{CE}$ , then  $\overline{AB} \cong \overline{CE}$ .

3. If  $Q$  is between  $P$  and  $R$ , then  $PR = PQ + QR$ .

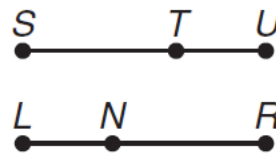
4. If  $AB + BC = EF + FG$  and  $AB + BC = AC$ , then  $EF + FG = AC$ .

**Complete each proof.**

**5. Given:**  $\overline{SU} \cong \overline{LR}$   
 $\overline{TU} \cong \overline{LN}$

**Prove:**  $\overline{ST} \cong \overline{NR}$

**Proof:**



Statements	Reasons
a. $\overline{SU} \cong \overline{LR}, \overline{TU} \cong \overline{LN}$	a. _____
b. _____	b. Definition of $\cong$ segments
c. $SU = ST + TU$ $LR = LN + NR$	c. _____
d. $ST + TU = LN + NR$	d. _____
e. $ST + LN = LN + NR$	e. _____
f. $ST + LN - LN = LN + NR -$	f. _____
g. _____	g. Substitution Property
h. $\overline{ST} \cong \overline{NR}$	h. _____

**Given:**  $\overline{AB} \cong \overline{CD}$

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

**Proof:**

Statements	Reasons
a. _____	a. Given
b. $AB = CD$	b. _____
c. $CD = AB$	c. _____
d. _____	d. Definition of $\cong$ segments

**PROOF Write a two-column proof.**

1. If  $m\angle ABC + m\angle CBD = 90$ ,  $m\angle ABC = 3x - 5$ , and  $m\angle CBD = \frac{x + 1}{2}$ , then  $x = 27$ .

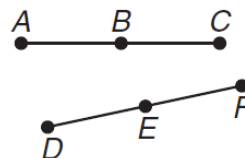
**Complete the following proof.**

1. **Given:**  $\overline{AB} \cong \overline{DE}$

$B$  is the midpoint of  $\overline{AC}$ .

$E$  is the midpoint of  $\overline{DF}$ .

**Prove:**  $\overline{BC} \cong \overline{EF}$



**Proof:**

Statements	Reasons
a. _____ _____	a. Given
b. $AB = DE$	b. _____
c. _____ _____	c. Definition of Midpoint
d. $BC = DE$	d. _____
e. $BC = EF$	e. _____
f. _____	f. _____