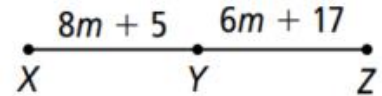




4. Given:  $XY = YZ$



$$8m + 5 = 6m + 17$$

Substitution Property

$$2m + 5 = 17$$

a.   ? Subtraction Property of Equality

$$2m = 12$$

b.   ? Subtraction Property of Equality

$$m = 6$$

c.   ? Division Property of Equality

Name the property of equality or congruence that justifies going from the first statement to the second statement.

5.  $\overline{XY} \cong \overline{TZ}$

$$\overline{TZ} \cong \overline{XY}$$

Symmetric Property of Congruence

7.  $4n + 6 - 2n = 9$

$$2n + 6 = 9$$

Combine like terms, using the Associative and Distributive Properties.

6.  $3(x + 2) = 15$

$$3x + 6 = 15$$

Distributive Property

8.  $\angle A \cong \angle B$  and  $\angle B \cong \angle C$

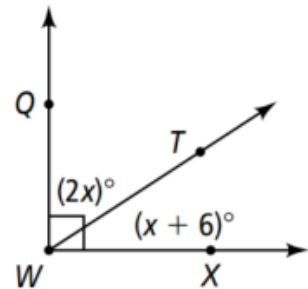
$$\angle A \cong \angle C$$

Transitive Property of Congruence

9. Write a two-column proof.

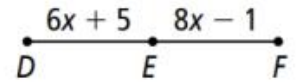
Given:  $\angle QWT$  and  $\angle TWX$  are complementary.

Prove:  $x = 28$



Statements	Reasons
1) $\angle QWT$ and $\angle TWX$ are complementary	1) <u>  ?</u> Given
2) $m\angle QWT + m\angle TWX = 90$	2) <u>  ?</u> Definition of complementary angles
3) $2x + x + 6 = 90$	3) <u>  ?</u> Substitution Property
4) $3x + 6 = 90$	4) <u>  ?</u> Combine like terms.
5) $3x = 84$	5) <u>  ?</u> Subtraction Property of Equality
6) $x = 28$	6) <u>  ?</u> Division Property of Equality

10. **Developing Proof** Fill in the missing statements or reasons for the two-column proof.



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

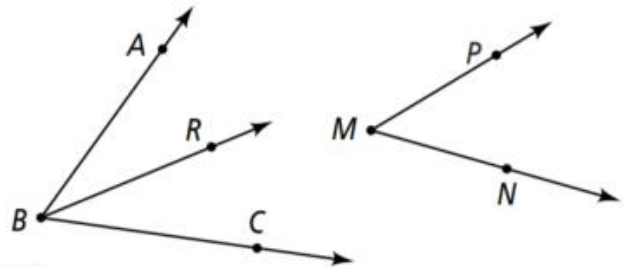
**Prove:**  $DE = 23$

Statements	Reasons
1) $E$ is the midpoint of $\overline{DF}$ .	1) ? <b>Given</b>
2) ? <b><math>DE = EF</math></b>	2) Definition of midpoint
3) $6x + 5 = 8x - 1$	3) ? <b>Substitution Property</b>
4) $5 = 2x - 1$	4) ? <b>Subtraction Property of Equality</b>
5) ? <b><math>6 = 2x</math></b>	5) Addition Property of Equality
6) ? <b><math>3 = x</math></b>	6) Division Property of Equality
7) $DE = 6x + 5$	7) Given
8) $DE = 6(3) + 5$	8) ? <b>Substitution Property</b>
9) $DE = 23$	9) ? <b>Simplify.</b>

11. Write a two-column proof.

**Given:**  $m\angle PMN = m\angle RBC$

**Prove:**  $m\angle ABR + m\angle PMN = m\angle ABC$



Statements	Reasons
1) $m\angle PMN = m\angle RBC$	1) Given
2) $m\angle ABR + m\angle RBC = m\angle ABC$	2) Angle Addition Postulate
3) $m\angle ABR + m\angle PMN = m\angle ABC$	3) Substitution Property