

Theorems

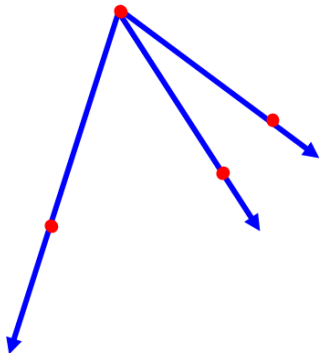
Segment congruence

Reflexive properties

Symmetric properties

Transitive properties

Angle addition postulate



Segment addition postulate



Name the property that the statement illustrates.

$$\overline{CD} \cong \overline{CD}$$

- Symmetric Property of Segment Congruence
- Transitive Property of Segment Congruence
- Reflexive Property of Segment Congruence

Name the property that the statement illustrates.

$$\text{If } \angle B \cong \angle C \text{ and } \angle C \cong \angle D, \text{ then } \angle B \cong \angle D.$$

- Transitive Property of Angle Congruence
- Symmetric Property of Angle Congruence
- Reflexive Property of Angle Congruence

Name the property that the statement illustrates.

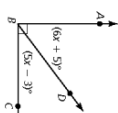
If $\overline{EP} \cong \overline{BE}$, then $\overline{BE} \cong \overline{EP}$.

- Symmetric Property of Segment Congruence
- Transitive Property of Segment Congruence
- Reflexive Property of Segment Congruence

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Identify the numbered statement or reason in the two-column proof.

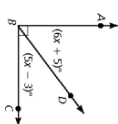
Given $\angle ABC$ is a right angle.
Prove $x = 8$



STATEMENTS	REASONS
1. $\angle ABC$ is a right angle.	1. Given
2. $m\angle ABC = 90^\circ$	2. Angle Addition Postulate
3. $(6x + 5)^\circ + (5x - 3)^\circ = 90^\circ$	4. Substitution Property of Equality
4. $11x + 2 = 90$	5. Simplify
5. $11x + 2 = 90$	6. Subtraction Property of Equality
6. $11x + 2 = 90$	7. $x = 8$
7. $x = 8$	
What is Statement 3?	
a. $\overline{BD} \perp \overline{BC}$	c. $m\angle ABD = m\angle CBD$
b. $m\angle ABD + m\angle CBD = 90^\circ$	d. $2(m\angle ABD) = 90^\circ$

Identify the numbered statement or reason in the two-column proof.

Given $\angle ABC$ is a right angle.
Prove $x = 8$

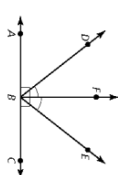


STATEMENTS	REASONS
1. $\angle ABC$ is a right angle.	1. Given
2. $m\angle ABC = 90^\circ$	2. Angle Addition Postulate
3. $(6x + 5)^\circ + (5x - 3)^\circ = 90^\circ$	4. Substitution Property of Equality
4. $11x + 2 = 90$	5. Simplify
5. $11x + 2 = 90$	6. Subtraction Property of Equality
6. $11x + 2 = 90$	7. $x = 8$
7. $x = 8$	
What is Reason 2?	
a. Given	c. Definition of complementary angles
b. Definition of a right angle	d. Angle Addition Postulate

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Identify the numbered statement or reason in the two-column proof.

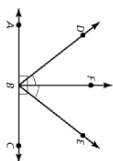
Given $m\angle ABE = 90^\circ$, $m\angle CBE = 90^\circ$, $m\angle DBE = m\angle EBF$
Prove $m\angle ABD = m\angle CBE$



STATEMENTS	REASONS
1. $m\angle ABE = 90^\circ$, $m\angle CBE = 90^\circ$	1. Given
2. $m\angle ABE = m\angle CBE$	2. Angle Addition Postulate
3. $m\angle ABE = m\angle ABD + m\angle DBE$	3. Angle Addition Postulate
4. $m\angle CBE = m\angle CBE + m\angle DBE$	4. Substitution Property of Equality
5. $m\angle ABD + m\angle DBE = m\angle CBE + m\angle DBE$	5. Transitive Property of Equality
6. $m\angle ABD = m\angle CBE$	6. Subtraction Property of Equality
What is Reason 3?	
a. Definition of complementary angles	c. Angle Addition Postulate
b. Substitution Property of Equality	d. Linear Pair Postulate

Identify the numbered statement or reason in the two-column proof.

Given $m\angle ABF = 90^\circ$, $m\angle CBF = 90^\circ$, $m\angle DBF = m\angle EBF$
Prove $m\angle ABD = m\angle CBE$



STATEMENTS	REASONS
1. $m\angle ABF = 90^\circ$, $m\angle CBF = 90^\circ$, $m\angle DBF = m\angle EBF$	1. Given
2. $m\angle ABF = m\angle EBF$	2.
3. $m\angle ABF = m\angle ABD + m\angle DBF$	3.
4. $m\angle CBF = m\angle CBE + m\angle EBF$	4. Transitive Property of Equality
5. $m\angle ABD + m\angle DBF = m\angle CBE + m\angle EBF$	5.
6. $m\angle ABD = m\angle CBE$	6. Subtraction Property of Equality

What is Statement 4?

- $m\angle ABD + m\angle DBF = m\angle CBE + m\angle EBF$
- $m\angle ABD = m\angle CBE$
- $m\angle CBF = m\angle ABD + m\angle DBF$
- $m\angle ABF = m\angle ABD$

Identify the numbered statement or reason in the two-column proof.

Given $EH = 28$, $EF = 2x - 1$, $FG = x + 5$, $GH = x$
Prove $x = 6$



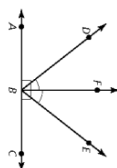
STATEMENTS	REASONS
1. $EH = 28$, $EF = 2x - 1$, $FG = x + 5$, $GH = x$	1. Given
2. $EH = EG + GH$ $EG = EF + FG$	2.
3. $EH = EF + FG + GH$	3.
4. $28 = (2x - 1) + (x + 5) + x$	4. Substitution Property of Equality
5.	5. Simplify
6.	6. Subtraction Property of Equality
7. $6 = x$	7. Division Property of Equality
8. $x = 6$	8. Symmetric Property of Equality

What is Reason 2?

- Addition Property of Equality
- Angle Addition Postulate
- Segment Addition Postulate
- Substitution Property of Equality

Identify the numbered statement or reason in the two-column proof.

Given $m\angle ABF = 90^\circ$, $m\angle CBF = 90^\circ$, $m\angle DBF = m\angle EBF$
Prove $m\angle ABD = m\angle CBE$



STATEMENTS	REASONS
1. $m\angle ABF = 90^\circ$, $m\angle CBF = 90^\circ$, $m\angle DBF = m\angle EBF$	1. Given
2. $m\angle ABF = m\angle CBF$	2.
3. $m\angle ABF = m\angle ABD + m\angle DBF$	3.
4. $m\angle CBF = m\angle CBE + m\angle EBF$	4. Transitive Property of Equality
5. $m\angle ABD + m\angle EBF = m\angle CBE + m\angle EBF$	5.
6. $m\angle ABD = m\angle CBE$	6. Subtraction Property of Equality

What is Reason 3?

- Addition Property of Equality
- Angle Addition Postulate
- Multiplication Property of Equality
- Substitution Property of Equality

Identify the numbered statement or reason in the two-column proof.

Given $EH = 28$, $EF = 2x - 1$, $FG = x + 5$, $GH = x$
Prove $x = 6$



STATEMENTS	REASONS
1. $EH = 28$, $EF = 2x - 1$, $FG = x + 5$, $GH = x$	1. Given
2. $EH = EG + GH$ $EG = EF + FG$	2.
3. $EH = EF + FG + GH$	3.
4. $28 = (2x - 1) + (x + 5) + x$	4. Substitution Property of Equality
5.	5. Simplify
6.	6. Subtraction Property of Equality
7. $6 = x$	7. Division Property of Equality
8. $x = 6$	8. Symmetric Property of Equality

What is Reason 3?

- Addition Property of Equality
- Simplify
- Transitive Property of Equality
- Substitution Property of Equality