

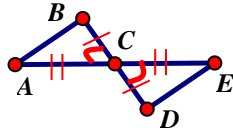
Complete the following proofs.

1) GIVEN:

$$\overline{BC} \cong \overline{DC} \text{ \& } \overline{AC} \cong \overline{EC}$$

PROVE:

$$\angle A \cong \angle E$$

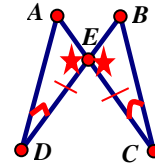


2) GIVEN:

$$\angle D \cong \angle C \text{ \& } \overline{DE} \cong \overline{CE}$$

PROVE:

$$\overline{AD} \cong \overline{BC}$$



STATEMENT	REASON
1) $\overline{BC} \cong \overline{DC}$	1) Given
2) $\overline{AC} \cong \overline{EC}$	2) Given
3) $\angle BCA \cong \angle ECD$	3) Vert \angle 'S thm
4) $\triangle ABC \cong \triangle EDC$	4) SAS
5) $\angle A \cong \angle E$	5) CPCTC

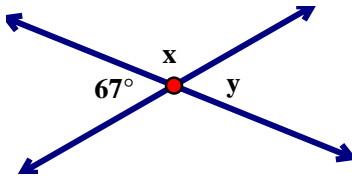
STATEMENT	REASON
1) $\angle D \cong \angle C$	1) Given
2) $\overline{DE} \cong \overline{CE}$	2) Given
3) $\angle BEC \cong \angle AED$	3) Vert \angle 'S thm
4) $\triangle AED \cong \triangle BEC$	4) ASA
5) $\overline{AD} \cong \overline{BC}$	5) CPCTC

Types of Angles:	Definition	Sketch
Adjacent Angles	Angles that share a vertex and a ray and NO interior points	 $\angle 1 \text{ and } \angle 2$ $\angle 3 \text{ and } \angle 4$
Vertical Angles	Non-adjacent angles formed by the intersection of 2 lines.	 $\angle 1 \text{ and } \angle 2$ $\angle 3 \text{ and } \angle 4$
Linear Pair	2 angles that are adjacent and sum to 180° (form a line)	 $\angle 1 \text{ and } \angle 2$
Supplementary Angles	2 or more angles that sum to 180° (they don't have to be adjacent)	 $\angle 3 + \angle 4 = 180^\circ$
Complementary Angles	2 or more angles that sum to 90° (they don't have to be adjacent)	 $\angle 3 + \angle 4 = 90^\circ$

Example Problems:

1. Solve the following.

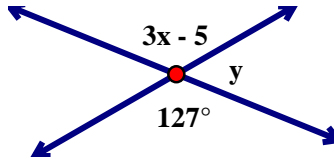
a) $x = \underline{113^\circ}$ $y = \underline{67^\circ}$



$$x + 67 = 180$$

$$x = 113^\circ$$

b) $x = \underline{44^\circ}$ $y = \underline{53^\circ}$



$$y + 127 = 180$$

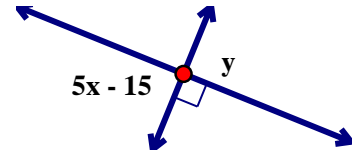
$$y = 53^\circ$$

$$3x - 5 = 127$$

$$3x = 132$$

$$x = 44^\circ$$

c) $x = \underline{21^\circ}$ $y = \underline{90^\circ}$



$$5x - 15 = 90$$

$$5x = 105$$

$$x = 21^\circ$$

2. $\angle 5$ and $\angle 3$ are vertical angles.
3. $\angle 1$ and $\angle 5$ are a linear pair.
4. $\angle 4$ and $\angle 3$ are adjacent angles.
5. $\angle 4$ and $\angle 1$ are vertical angles.
6. $\angle 3$ and $\angle 4$ are a linear pair.

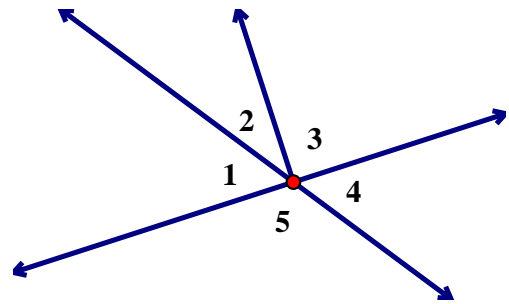
T or F

T or F

T or F

T or F

T or F



Are there any complementary angles? Why or why not?

No, because there are no right angles given

7. If $\angle A$ and $\angle B$ are supplements and $m\angle A = 150^\circ$, what is $m\angle B$? $\underline{30^\circ}$

$$180 - 150$$

8. If $\angle A$ and $\angle B$ are complements and $m\angle A = 27^\circ$, what is $m\angle B$? $\underline{63^\circ}$

$$90 - 27$$

9. If $\angle A$ and $\angle B$ are vertical angles and $m\angle A = 36^\circ$, what is $m\angle B$? $\underline{36^\circ}$

10. If $\angle A$ and $\angle B$ are a linear pair and $m\angle A = 2x + 8$ and $m\angle B = 3x + 2$, what is the value of x ? $x = \underline{34^\circ}$

$$2x + 8 + 3x + 2 = 180$$

$$5x + 10 = 180$$

$$5x = 170$$

$$x = 34$$

11. If $\angle A$ and $\angle B$ are vertical angles and $m\angle A = 7x - 5$ and $m\angle B = 4x + 10$, what is the value of x ? $x = \underline{5^\circ}$

$$7x - 5 = 4x + 10$$

$$3x = 15$$

$$x = 5$$