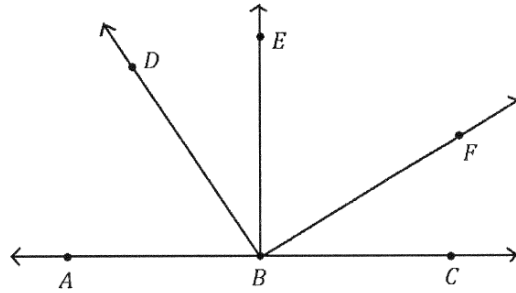


ANSWERS!

DIRECTIONS: In the following diagram, $\overrightarrow{BE} \perp \overrightarrow{AC}$, $\overrightarrow{BD} \perp \overrightarrow{BF}$, $m\angle DBE = 5x$, and $m\angle EBF = 3x - 6$. Find the value of x . Show your work.

1. $x = 12$



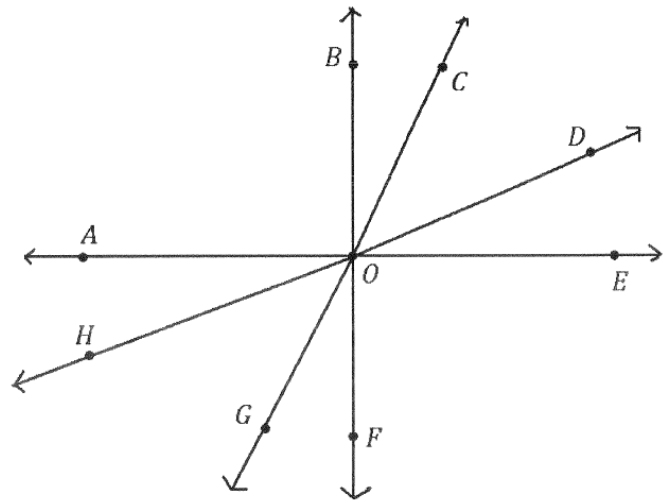
DIRECTIONS: In the following diagram, $\overrightarrow{BF} \perp \overrightarrow{AE}$, $m\angle BOC = 30$, and $m\angle GOH = 45$. Find the measures of the angles.

2. $m\angle COH = 135^\circ$

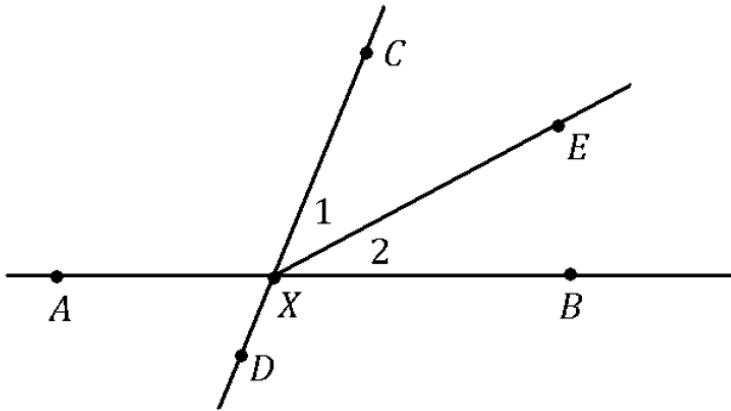
3. $m\angle HOF = 75^\circ$

4. $m\angle DOE = 15^\circ$

5. $m\angle COA = 120^\circ$



DIRECTIONS: Name the definition, postulate, theorem, or property that most accurately justifies each statement. Use the following diagram.



6. Segment Addition Postulate

$$CX + XD = CD$$

7. Definition of Midpoint

If X is midpoint of \overline{AB} , then
 $AX = \frac{1}{2}AB$

8. Vertical \sphericalangle s are \cong

$$\sphericalangle AXC \cong \sphericalangle DXB$$

9. Definition of \sphericalangle bisector

If \overrightarrow{XE} bisects $\sphericalangle CXB$, then
 $m\angle 1 = m\angle 2$

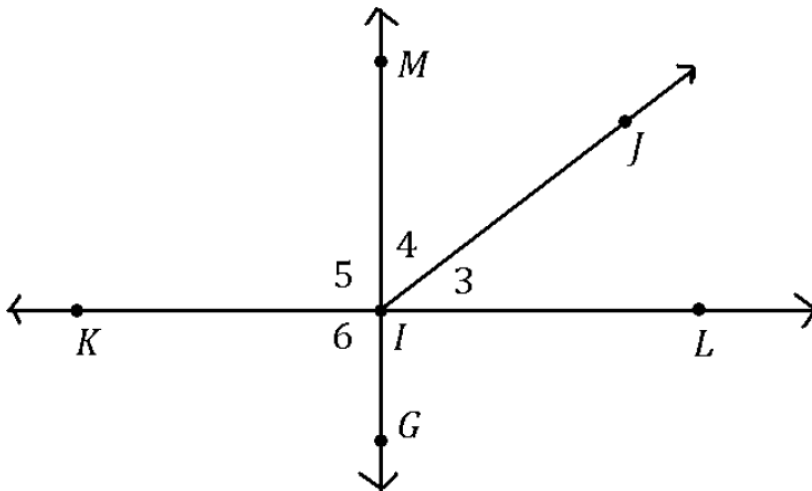
**10. Linear pair \sphericalangle s = 180 OR
 \sphericalangle Addition Postulate**

$$m\angle AXE + m\angle EXB = 180$$

11. Reflexive Property

$$XE = XE$$

DIRECTIONS: Name the definition, postulate, theorem, or property that most accurately justifies each statement. Use the following diagram.



12. Definition of \sphericalangle bisector

If $\sphericalangle 4 = \frac{1}{2} (m\sphericalangle MIL)$, then \overrightarrow{IJ} bisects $\sphericalangle MIL$

13. Definition of \perp lines

If $\overrightarrow{MG} \perp \overrightarrow{KL}$, then $m\sphericalangle 5 = 90$

14. \sphericalangle Addition Postulate

$m\sphericalangle 3 + m\sphericalangle 4 = m\sphericalangle MIL$

15. Subtraction Property

If $\sphericalangle 5 + m\sphericalangle 4 = m\sphericalangle 6 + m\sphericalangle 4$, then $m\sphericalangle 5 = m\sphericalangle 6$

16. All right \sphericalangle s are \cong

If $\sphericalangle 5$ and $\sphericalangle 6$ are right angles, then $\sphericalangle 5 \cong \sphericalangle 6$

17. Definition of Midpoint

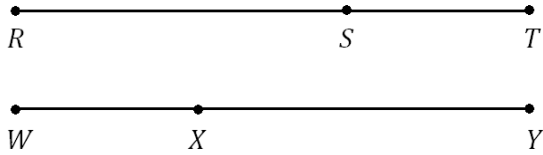
If $\overline{KI} \cong \overline{IL}$, then I is the midpoint of \overline{KL}

18. Transitive Property

If $KI = IL$ and $MI = IL$, then $KI = MI$

DIRECTIONS: Supply the missing reasons.

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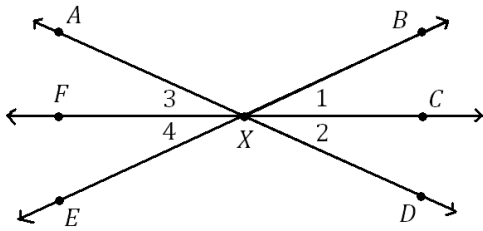
Given: $RT = WY$; $ST = WX$

Prove: $RS = XY$

1. $RT = WY$
2. $RT = RS + ST$;
 $WY = WX + XY$
3. $RS + ST = WX + XY$
4. $ST = WX$
5. $RS = XY$

1. **GIVEN**
2. **Segment Addition Postulate**
3. **Substitution OR
Transitive Property**
4. **GIVEN**
5. **Subtraction Property**

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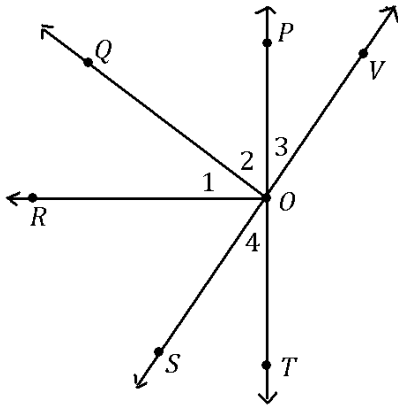


Given: $\angle 1 \cong \angle 2$
Prove: \overrightarrow{XF} bisects $\angle AXE$

1. $\angle 1 \cong \angle 2$
2. $\angle 1 \cong \angle 4$;
 $\angle 2 \cong \angle 3$
3. $\angle 3 \cong \angle 4$
4. \overrightarrow{XF} bisects $\angle AXE$

1. **GIVEN**
2. **Vertical \angle s are \cong**
3. **Substitution OR
 Transitive Property**
4. **Definition of \angle bisector**

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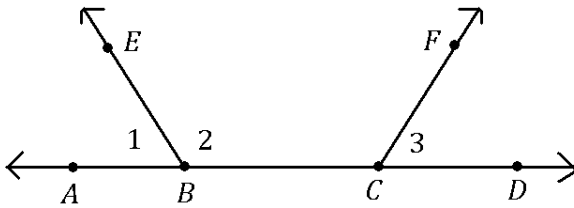
Given: $\overline{OQ} \perp \overline{SV}$;
 $\overline{OR} \perp \overline{PT}$

Prove: $\sphericalangle 1 \cong \sphericalangle 3$

1. $\overline{OQ} \perp \overline{SV}$;
 $\overline{OR} \perp \overline{PT}$
2. $m\angle QOV = 90$;
 $m\angle ROP = 90$
3. $m\angle QOV = m\angle 2 + m\angle 3$;
 $m\angle ROP = m\angle 1 + m\angle 2$
4. $90 = m\angle 2 + m\angle 3$;
 $90 = m\angle 1 + m\angle 2$
5. $\sphericalangle 2$ and $\sphericalangle 3$ are comp \sphericalangle s ;
 $\sphericalangle 1$ and $\sphericalangle 2$ are comp \sphericalangle s
6. $\sphericalangle 1 \cong \sphericalangle 3$

1. **GIVEN**
2. **Definition of \perp lines**
3. **\sphericalangle Addition Postulate**
4. **Substitution OR
Transitive Property**
5. **Definition of complementary \sphericalangle s**
6. **\cong Comps Theorem**

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Given: $\angle 3$ and $\angle 2$ are supp \angle s

Prove: $\angle 1 \cong \angle 3$

7. $\angle 3$ and $\angle 2$ are supp \angle s

8. $m\angle 1 + m\angle 2 = 180$

9. $\angle 1$ and $\angle 2$ are supp \angle s

10. $\angle 1 \cong \angle 3$

1. **GIVEN**

2. **Linear pair \angle s = 180 OR**
 \angle Addition Postulate

3. **Definition of supplementary \angle s**

4. **\cong Supps Theorem**