Name _____ Date _____ Period _____

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

1. $x =$ _____
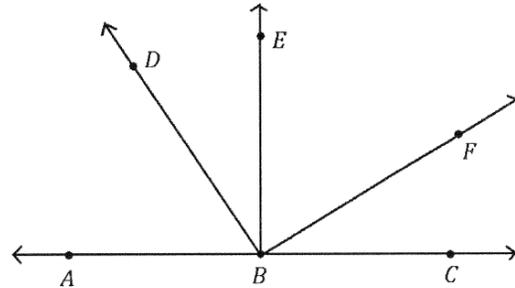
DIRECTIONS: In the following diagram, $\overleftrightarrow{BF} \perp \overleftrightarrow{AE}$, $m\sphericalangle BOC = 30$, and $m\sphericalangle GOH = 45$. Find the measures of the angles.

2. $m\sphericalangle COH =$ _____

3. $m\sphericalangle HOF =$ _____

4. $m\sphericalangle DOE =$ _____

5. $m\sphericalangle COA =$ _____
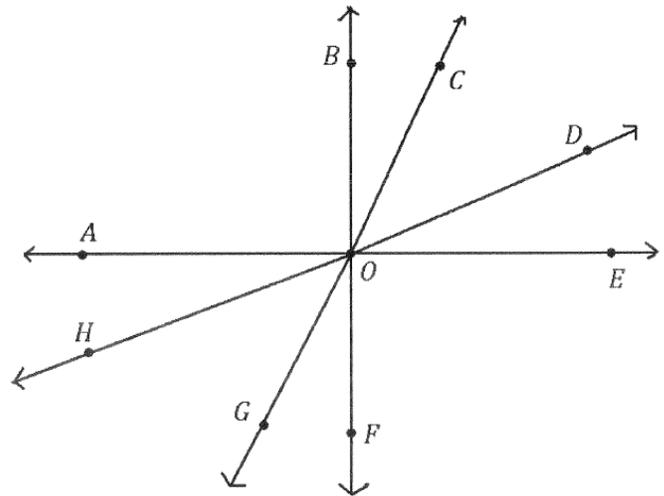
<u>DIRECTIONS</u>: Name the definition, postulate, theorem, or property that most accurately justifies each statement. Use the following diagram.
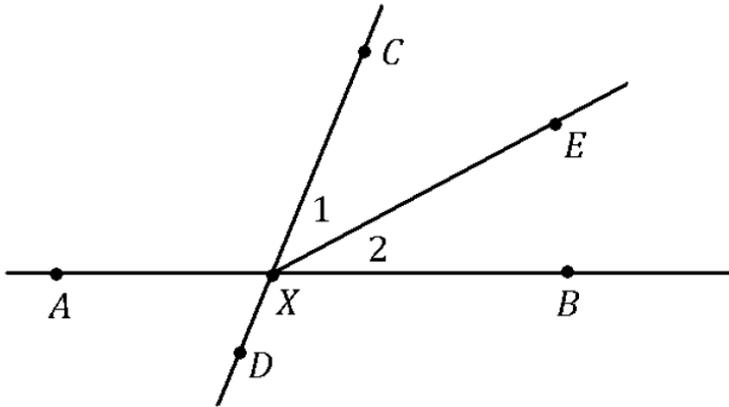
6. _____ $CX + XD = CD$

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

8. _____ $\angle AXC \cong \angle DXB$

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

10. _____ $m\angle AXE + m\angle EXB = 180$

11. _____ $XE = XE$

DIRECTIONS: Name the definition, postulate, theorem, or property that most accurately justifies each statement. Use the following diagram.
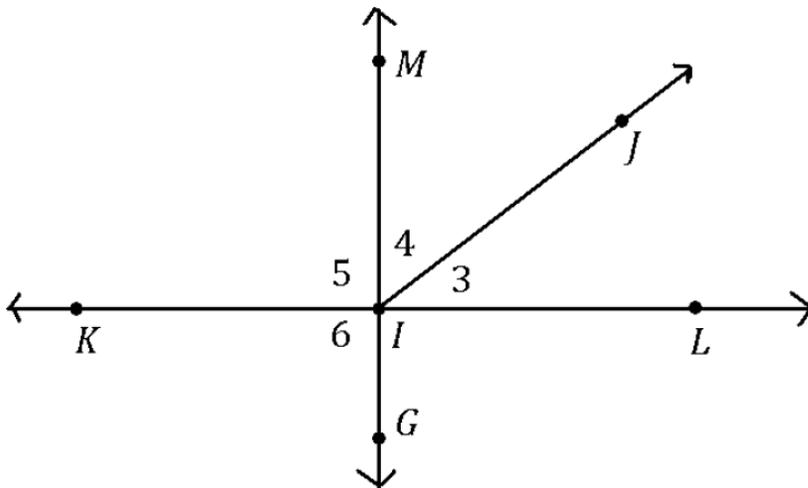
12. _____ If $m\angle 4 = \frac{1}{2}(m\angle MIL)$, then $\overrightarrow{IJ}$ bisects $\angle MIL$

13. _____ If $\overleftrightarrow{MG} \perp \overleftrightarrow{KL}$, then $m\angle 5 = 90$

14. _____ $m\angle 3 + m\angle 4 = m\angle MIL$

15. _____ If $m\angle 5 + m\angle 4 = m\angle 6 + m\angle 4$, then $m\angle 5 = m\angle 6$

16. _____ If $\angle 5$ and $\angle 6$ are right angles, then $\angle 5 \cong \angle 6$

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

18. _____ If $KI = IL$ and $MI = IL$, then $KI = MI$

DIRECTIONS: Supply the missing reasons.

19

R —————— S —— T

W —— X —————— Y
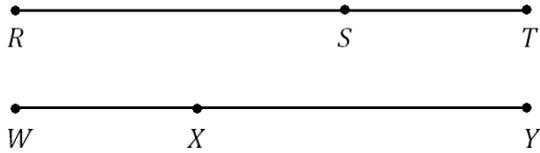
Given: $RT = WY; ST = WX$

Prove: $RS = XY$

1. $RT = WY$

1. _____

2. $RT = RS + ST;$
$WY = WX + XY$

2. _____

3. $RS + ST = WX + XY$

3. _____

4. $\quad ST = WX$

4. _____

5. $RS \quad = \quad XY$

5. _____

20
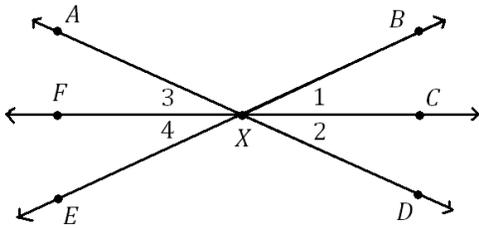
Given: $\angle 1 \cong \angle 2$

Prove: $\overrightarrow{XF}$ bisects $\angle AXE$

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

21
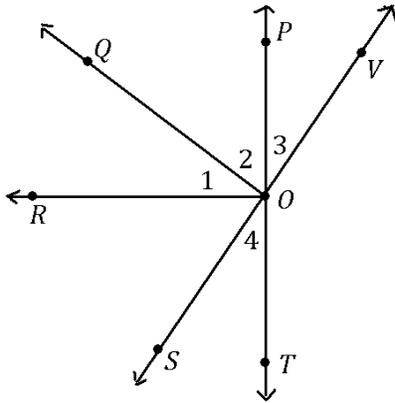
Given: $\overline{OQ} \perp \overline{SV}$;
$\overrightarrow{OR} \perp \overleftrightarrow{PT}$

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

---

1. $\overline{OQ} \perp \overline{SV}$;
$\overrightarrow{OR} \perp \overleftrightarrow{PT}$

1. _____

2. $m\angle QOV = 90$;
$m\angle ROP = 90$

2. _____

3. $m\angle QOV = m\angle 2 + m\angle 3$;
$m\angle ROP = m\angle 1 + m\angle 2$

3. _____

4. $90 = m\angle 2 + m\angle 3$;
$90 = m\angle 1 + m\angle 2$

4. _____

5. $\angle 2$ and $\angle 3$ are comp $\angle$s ;
$\angle 1$ and $\angle 2$ are comp $\angle$s

5. _____

6. $\angle 1 \cong \angle 3$

6. _____

22
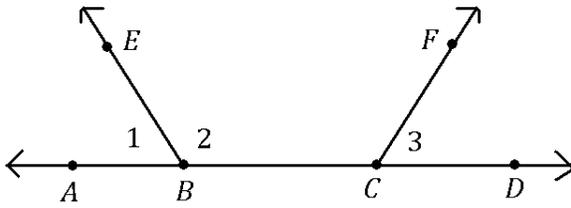
Given: ∡3 and ∡2 are supp ∡s

Prove: ∡1 ≅ ∡3

---

5. ∡3 and ∡2 are supp ∡s

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

7. ∡1 and ∡2 are supp ∡s

8. ∡1 ≅ ∡3

1. _____

2. _____

3. _____

4. _____