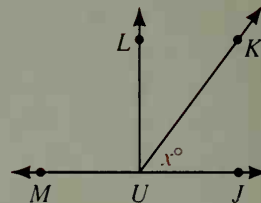


Written Exercises

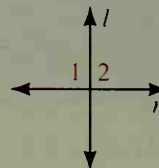
- A** 1. In the diagram, $\overrightarrow{UL} \perp \overrightarrow{MJ}$ and $m\angle JUK = x$. Express in terms of x the measures of the angles named.
- a. $\angle LUK$ b. $\angle MUK$



2. Copy and complete the proof of Theorem 2-5: If two lines form congruent adjacent angles, then the lines are perpendicular.

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

Prove: $l \perp n$

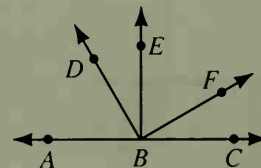


Proof:

Statements	Reasons
1. $\angle 1 \cong \angle 2$, or $m\angle 1 = m\angle 2$	1. ? given
2. $m\angle 1 + m\angle 2 = 180$	2. ? def. of supp. \angle s
3. $m\angle 2 + m\angle 2 = 180$, or $2m\angle 2 = 180$	3. ? substitution
4. $m\angle 2 = 90$	4. ? division
5. $\angle 1 \perp \angle 2$	5. Def. of \perp lines

Name the definition or state the theorem that justifies the statement about the diagram.

- If $\angle EBC$ is a right angle, then $\overrightarrow{BE} \perp \overrightarrow{AC}$.
- If $\overrightarrow{AC} \perp \overrightarrow{BE}$, then $\angle ABE$ is a right angle.
- If $\overrightarrow{BE} \perp \overrightarrow{AC}$, then $\angle ABD$ and $\angle DBE$ are complementary.
- If $\angle ABD$ and $\angle DBE$ are complementary angles, then $m\angle ABD + m\angle DBE = 90$.
- If $\overrightarrow{BE} \perp \overrightarrow{AC}$, then $m\angle ABE = 90$.
- If $\angle ABE \cong \angle EBC$, then $\overrightarrow{AC} \perp \overrightarrow{BE}$.



Exs. 3-12

In the diagram, $\overrightarrow{BE} \perp \overrightarrow{AC}$ and $\overrightarrow{BD} \perp \overrightarrow{BF}$.
Find the value of x .

- $m\angle ABD = 2x - 15$, $m\angle DBE = x$
- $m\angle DBE = 3x$, $m\angle EBF = 4x - 1$ $x = 13$
- $m\angle ABD = 3x - 12$, $m\angle DBE = 2x + 2$, $m\angle EBF = 2x + 8$
- $m\angle ABD = 6x$, $m\angle DBE = 3x + 9$, $m\angle EBF = 4x + 18$, $x = 9$
 $m\angle FBC = 4x$