

Angle Relationships TEKS G.4

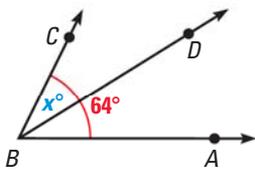
An **angle bisector** is a ray that divides an angle into two congruent angles.

Two angles are **complementary angles** if the sum of their measures is 90° .

Two angles are **supplementary angles** if the sum of their measures is 180° .

EXAMPLE Find the value of x .

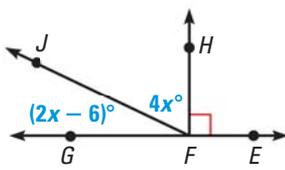
- a. \overrightarrow{BD} bisects $\angle ABC$ and $m\angle ABC = 64^\circ$.



Because \overrightarrow{BD} bisects $\angle ABC$, the value of x is half $m\angle ABC$.

$$x = \frac{64}{2} = 32$$

- b. $\angle GFJ$ and $\angle HFJ$ are complementary.



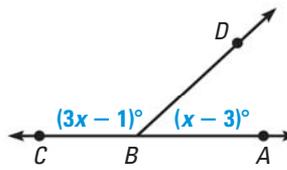
Because $\angle GFJ$ and $\angle HFJ$ are complementary angles, their sum is 90° .

$$(2x - 6) + 4x = 90$$

$$6x - 6 = 90$$

$$x = 16$$

- c. $\angle CBD$ and $\angle ABD$ are supplementary.



Because $\angle CBD$ and $\angle ABD$ are supplementary angles, their sum is 180° .

$$(3x - 1) + (x - 3) = 180$$

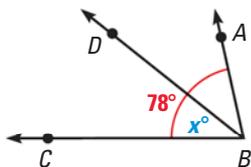
$$4x - 4 = 180$$

$$x = 46$$

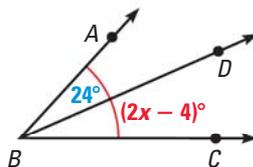
PRACTICE

\overrightarrow{BD} is the angle bisector of $\angle ABC$. Find the value of x .

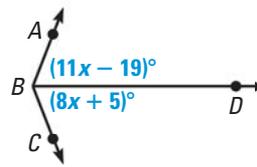
1.



2.

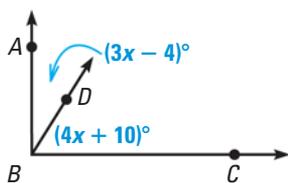


3.

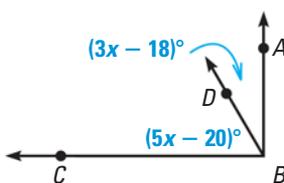


$\angle ABD$ and $\angle DBC$ are complementary. Find the value of x .

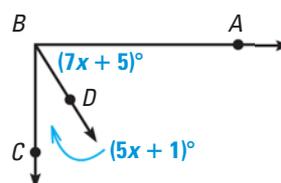
4.



5.

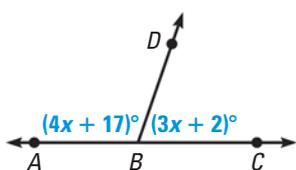


6.

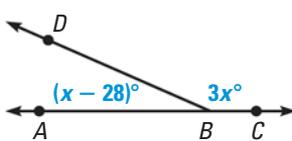


$\angle ABD$ and $\angle DBC$ are supplementary. Find the value of x .

7.



8.



9.

