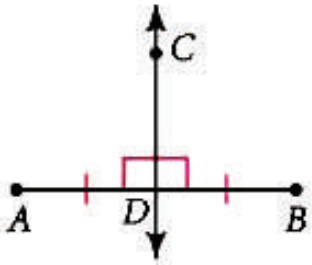
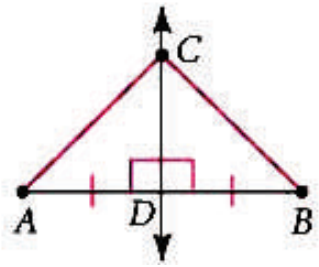
Name:_____Per:_____





Lesson 5-2 Bisectors in Triangles

Theorem 5-2: Perpendicular Bisector Theorem

If a point is on the perpendicular bisector of a segment, then it is

_____

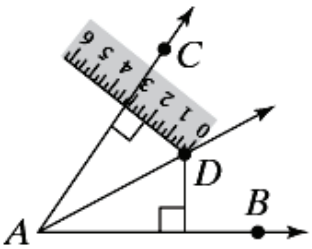
Theorem 5-3: Converse of the Perpendicular Bisector Theorem

If a point is equidistant from the endpoints of a segment, then it is

_____

The distance from a point to a line is _____

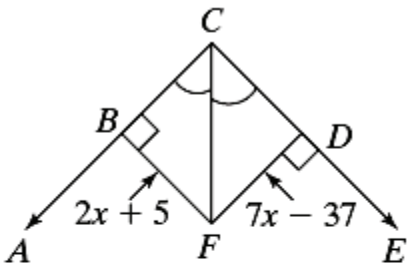
_____



D is 3 in. from $\overleftrightarrow{AB}$ and [ ].

Using the Angle Bisector Theorem

Find x, FB, and FD in the diagram at right.



[ ] = [ ]	[ ] Theorem
$7x - 37 = 2x + 5$	Substitute.
$7x = 2x +$ [ ]	Add [ ] to each side.
[ ] $= 42$	Subtract [ ] from each side.
$x =$ [ ]	Divide each side by [ ].
$FB = 2($[ ]$) + 5 =$ [ ]	Substitute.
$FD = 7($[ ]$) - 37 =$ [ ]	Substitute.

Theorem 5-4: Angle Bisector Theorem

If a point is on the bisector of an angle, then it is

_____

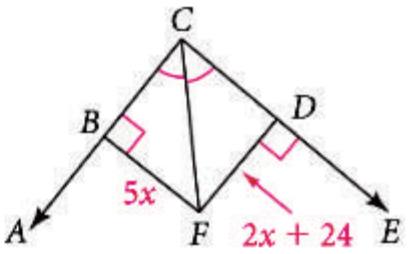
Theorem 5-5: Converse of the Angle Bisector Theorem

If a point in the interior of an angle is equidistant from the sides of the angle, then it is _____

Using the Angle Bisector Theorem

Multiple Choice What is the length of $\overline{FD}$?

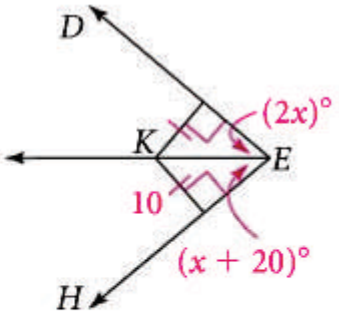
(A) 8 (B) 16 (C) 30 (D) 40



a. According to the diagram, how far is K from $\overrightarrow{EH}$? From $\overrightarrow{ED}$?

b. What can you conclude about $\overrightarrow{EK}$?

c. Find the value of x.



d. Find $m\angle DEH$.

According to the diagram, how far is L from $\overrightarrow{HK}$? From $\overrightarrow{HF}$?

How is $\overrightarrow{HL}$ related to $\angle KHF$? Explain.

Find the value of y.

Find $m\angle KHL$ and $m\angle FHL$.