

Geometry
Unit: Introduction to Geometry
Section: Parallel and Perpendicular Lines

Example: Perpendicular Bisectors

Screen 1

In the following figure, AF is the perpendicular bisector of BD, AD equals twenty-four and DF equals fifteen.

The figure has segment BD and perpendicular bisector AF, a segment connects A to D, making a sixty-five degree angle, a segment connects A to B and continues to T, segment BD extends past B to point C.

Find AB plus BF.

Since AF is the perpendicular bisector of BD, property number 1 of perpendicular bisectors tells us that AB equals AD and BF equals DF.

Using the values given, we can conclude that AB equals twenty-four and BF equals fifteen.

Therefore, AB plus BF equals twenty-four plus fifteen, equals thirty-nine.

Now find the measure of angle CBT.

Property number 2 of perpendicular bisectors tells us that the measure of angle ABF equals the measure of angle ADF.

Using the value given, we can conclude that the measure of angle ABF equals sixty-five degrees.

Since angle CBT is a vertical angle to angle ABF, they have equal measure, so the measure of angle CBT also equals sixty-five degrees.