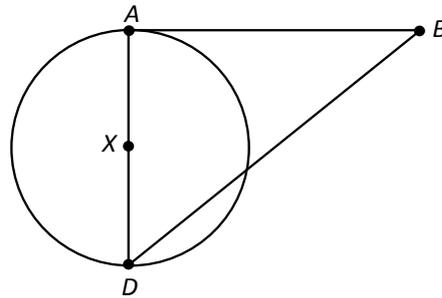


**Answer on Question#38094 - Math - Geometry**

**Question:** Given that  $AB$  is a tangent of the circle with the center at  $X$ ,  $AB = 12$ , and  $XD = 2.5$ , which is the length of  $DB$ ?

**Solution.** Let us first make a drawing:



Recall that by definition of a tangent of a circle,  $AB$  is perpendicular to the radius  $XA$ . Thus, the triangle  $ABD$  is a right triangle, and we can use the Pythagorean theorem:

$$AD^2 + AB^2 = DB^2.$$

Note that  $AD$  is the diameter of our circle, and  $AD = 2XD$ .

We have

$$DB^2 = (2XD)^2 + AB^2 = 5^2 + 12^2 = 169,$$

and thus

$$DB = \sqrt{169} = 13.$$

**Answer.**  $DB = 13$ .