

Question 21019

$\tan^2(4) - \sec^2(4) = \text{Answer}.$ -1.

B is the midpoint of line AC . $AB = 5x$ and $BC = 2x + 3$. Find AB , BC , and AC .

Solution.

Since

$\sec^2(x) = \frac{1}{\cos^2(x)}$, then using the equality $\cos^2(4) + \sin^2(4) = 1$, we get

$$\sec^2(4) = \frac{\cos^2(4) + \sin^2(4)}{\cos^2(4)} = 1 + \tan^2(4).$$

Finally,

$$\tan^2(4) - \sec^2(4) = \tan^2(4) - (1 + \tan^2(4)) = -1$$

Answer. -1.