

Since  $\sin^2 x + \cos^2 x = 1$ ,

$$\cos \theta = 1 - \left(\frac{4}{5}\right)^2 = \frac{3}{5}.$$

Additionally, the distance from the foot of the cevian and the foot of the median is

$$\frac{4 + 14}{2} - 4 = 5 \text{ cm.}$$

Let  $m$  be the length of the median. Then, we can apply the Law of Cosines to the triangle formed by  $A$  and the feet of the cevian and median to get

$$m^2 = 6^2 + 5^2 - 2 \cdot 6 \cdot 5 \cdot \frac{3}{5}.$$

$$m^2 = 25 \Rightarrow m = 5.$$

Therefore, the length of the median to  $BC$  is 5 cm.