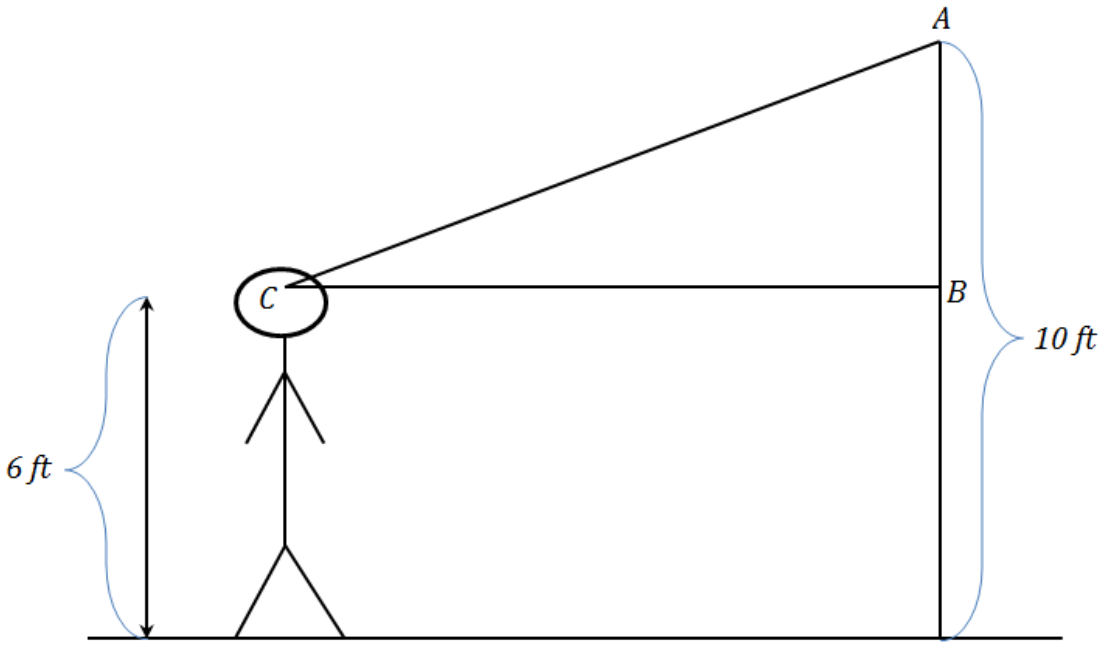
Basketball player looks directly at rim (10') the angle of elevation from eye level (6') is 25 degrees. How far from the rim is the player standing?

Solution.

First of all, lets build a figure:



Consider the triangle ABC. The figure shows that $AB = 10 - 6 = 4\ (ft)$. We know that $\angle ACB = 25°$. So we know all to find the desired distance. Use the law of tangents to find BC:

$$\tan \angle ACB = \frac{AB}{BC}$$

Then

$$BC = \frac{AB}{\tan \angle ACB} = \frac{4\ ft}{\tan 25°} \approx \mathbf{8.578\ ft}$$

Answer: $8.578\ ft$.

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