This is a problem in vector addition. Assign axes as indicated in the diagram and label the tensions as T_1 and T_2 . We will find the components in the manner from Section 4 rather than from



Section 3, that is, we will find the magnitudes and add in the proper sign to indicate direction afterward.

 $T_{ix} = -T \cos \theta = -25 \cos(15) = -24.1 \text{ N}$ $T_{1y} = -T \sin \theta = -25 \sin(15) = -6.5 \text{ N}$ $T_{2x} = +T \cos \theta = 25 \cos(15) = +24.1 \text{ N}$ $T_{2y} = -T \sin \theta = -25 \sin(15) = -6.5 \text{ N}$

Then, $T_x = T_{1x} + T_{2x} = -24.1 + 24.1 = 0 \text{ N}$ $T_y = T_{1y} + T_{2y} = -6.5 - 6.5 = -13 \text{ N}$

So the force applied is 13 N directed toward the back of the mouth.

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