Correct. The acute angles are complementary, so $m\angle S = 30^\circ$. This is a $30^\circ - 60^\circ - 90^\circ$ triangle. One way to find the length of the hypotenuse is to use the sine function, because you know the value of $\sin 60^\circ$:

$$\frac{5\sqrt{3}}{t} = \sin 60^\circ = \frac{\sqrt{3}}{2} \Rightarrow 10\sqrt{3} = t\sqrt{3} \Rightarrow 10 = t$$

One way to find the length of $\overline{RT}$ is to use the tangent function:

$$\frac{5\sqrt{3}}{s} = \tan 60^\circ = \sqrt{3} \Rightarrow 5\sqrt{3} = s\sqrt{3} \Rightarrow 5 = s$$