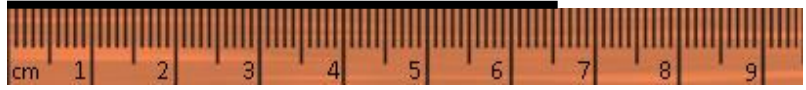


For questions 1. through 4. consider the line shown here:



1. What is the measured length of this line in mm? Use the amount of significant figures a wooden meter stick is capable of supplying.
2. What is the precision of this measurement?
3. If the above line is one side of a perfect square, what is the **area** of that square, take into account the correct number of significant figures and the correct units?

A student measures a line to be $3.8 \text{ cm} \pm 0.1 \text{ cm}$.

4. Find the absolute uncertainty in the measurement.
5. Find the fractional uncertainty in the measurement.
6. Find the percentage uncertainty in the measurement.
7. A flagpole is placed on the roof of a house. A student measures the flagpole to be $4.25 \text{ m} \pm 0.05 \text{ m}$. The same student measures the height from the ground to the base of the flagpole to be $6.40 \text{ m} \pm 0.15 \text{ m}$. If the flagpole is mounted vertically upward (straight up), how far is the tip of the flagpole above the ground. Be sure to use significant figures and include a raw uncertainty with your answer.
8. A car travels $250 \text{ m} \pm 15 \text{ m}$ in $12.2 \text{ s} \pm 0.2 \text{ s}$. Calculate its speed ($v=d/t$). Be sure to use significant figures and include a raw uncertainty with your answer.