

# Pre-Activity Questions

1. At the start of a road trip, your odometer read:

1 3 5 0 2 4 . 3

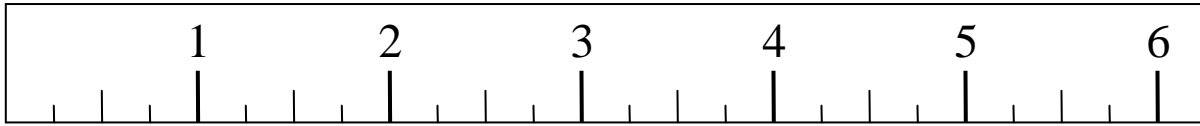
At the end of the trip, it read:

1 3 5 2 9 2 . 8

In miles, how far did you drive? How many feet did you drive? How precise is your answer? Explain.

2. Explain how to divide a fraction by a whole number. Demonstrate by dividing  $\frac{1}{8}$  by 2.
3. How do you add fractions with different denominators? Add  $\frac{1}{5} + \frac{1}{10}$ .

## Ruler 1

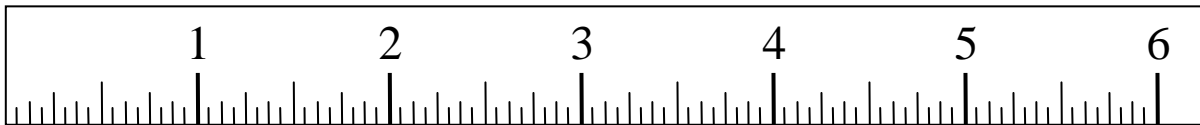


↑  
 $\frac{1}{4}$  in.

Precision:  $\frac{1}{4}$  in.

Accuracy:  $\frac{1}{4} \div 2 = \frac{1}{8}$  in.

## Ruler 2

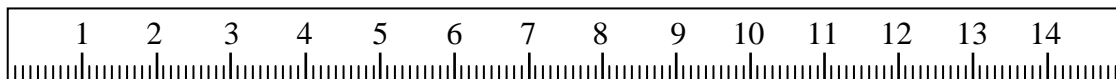


↑  
 $\frac{1}{16}$  in.

Precision:  $\frac{1}{16}$  in.

Accuracy:  $\frac{1}{16} \div 2 = \frac{1}{32}$  in.

## Ruler 3



↑  
 $1 \text{ mm} = \frac{1}{10} \text{ cm}$

Precision: 1 mm

Accuracy:  $1 \div 2 = \frac{1}{2} \text{ mm} = 0.5 \text{ mm}$

# Summary Questions

1. Describe the difference between a geometric sequence

$$a, ar, ar^2, ar^3, \dots, ar^n, \dots$$

and an exponential curve

$$y = ar^x.$$

2. For a graph of the form  $y = ar^x$ , explain what the  $y$ -intercept represents on a stringed instrument.
3. In theory, the distances between frets form a geometric sequence. But in practice, what factors might prevent the distances from forming a geometric sequence?
4. Would a musician rather have a fretted or fretless instrument that is out of tune? With which one is he or she more likely to play accurate pitches? Explain your answer.