

Pre-Activity Questions

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

1 3 5 0 2 4 . 3

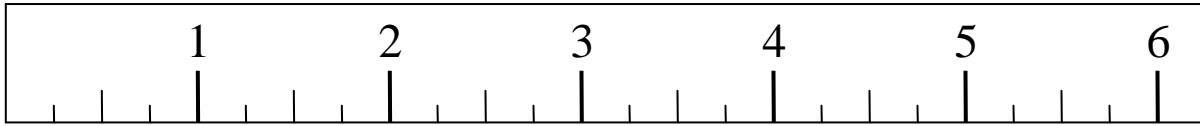
At the end of the trip, it read:

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

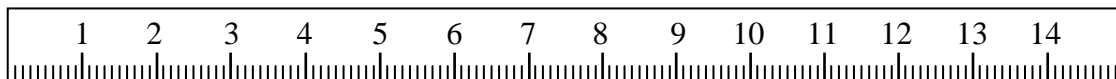


$\frac{1}{16}$ in.

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.