

Chapter 4 Rational Numbers

Lesson 4-1 Terminating and Repeating Decimals

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3 Write $\frac{1}{8}$ as a decimal.

$$\begin{array}{r} 0.125 \\ 8 \overline{)1.000} \quad \text{Divide 1 by 8.} \\ \underline{-8} \\ 20 \\ \underline{-16} \\ 40 \\ \underline{-40} \\ 0 \end{array}$$

$$\text{So, } \frac{1}{8} = 0.125.$$

17 **STEM** A praying mantis is an interesting insect that can rotate its head 180 degrees. Suppose a praying mantis is 10.5 centimeters long. What mixed number represents this length?

Think of the decimal as a sum.

$$10.5 = 10 + 0.5$$

Write 0.5 as a fraction.

$$0.5 = \frac{5}{10} \quad \text{Write 0.5 as a fraction.}$$

$$= \frac{1}{2} \quad \text{Simplify.}$$

$$\text{So, } 0.5 = \frac{1}{2}.$$

$$10.5 = 10 + 0.5 \quad \text{Write 10.5 as a sum.}$$

$$= 10 + \frac{1}{2} \quad \text{Write 0.5 as a fraction.}$$

$$= 10\frac{1}{2} \quad \text{Add.}$$

So, $10\frac{1}{2}$ centimeters represents the length of the praying mantis.