

## Repeating and Terminating

When converted into decimals, some fractions turn into repeating decimals and some terminate.

For example:

$$\frac{1}{2} = .5 \quad \leftarrow \text{terminating decimal}$$

$$\frac{1}{3} = .3333333333333333\ldots \quad \leftarrow \text{repeating decimal}$$

Without calculating, is it possible to predict which fractions result in terminating decimals and which result in repeating decimals?

$$\frac{1}{2} = .5$$

$$\frac{1}{4} = .25$$

$$\frac{1}{8} = .125$$

$$\frac{1}{5} = .2$$

$$\frac{1}{25} = .04$$

$$\frac{1}{125} = .008$$

What do you notice?

What do you wonder?