8.NS.1 I know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.

Which of the following is an irrational number? (can't be written as a fraction)

A. $\sqrt{21}$ non perfect √
B. $2.59 \times 10^5 = 259{,}000/1$
C. $\sqrt{81} = 9 = \frac{9}{1}$
D. $\frac{-1}{3}$

Select all the irrational numbers.

- ☐ $\frac{3}{2}$ Rational fraction
- ☐ **1.5** R - terminating dec.
- ☐ $\frac{1}{9}$ R - fraction
- ☑ **1.414213 ...** Non terminating; Non repeating
- ☐ $\mathbf{0.\overline{45}}$ R - repeating dec.
- ☑ **3.14159 ...** Non terminating; Non repeating

Which of the fractions shown below represents the repeating decimal $0.\overline{25}$?

$\frac{25}{99}$

A. $\frac{9}{25}$
B. $\frac{25}{99}$
C. $\frac{99}{25}$
D. $\frac{25}{9}$

Write the rational number $\frac{3}{8}$ in decimal form:

A. 2.67
B. 0.338
C. 8.3
D. 0.375

$$8\overline{)3.375}$$
$$\begin{array}{r} 0 \\ \hline 30 \\ 24 \\ \hline 60 \\ 56 \\ \hline 40 \\ 40 \\ \hline 0 \end{array}$$

Part A: Explain in your own words what it means for a number to be rational. Provide two examples of numbers that are rational and two examples of numbers that are irrational.

Rational numbers are numbers that can be written as a fraction.
Examples of rational: 3.75, $.\overline{45}$ Examples of irrational: π, $\sqrt{8}$

Part B: Would the quotient of $35 \div 11$ be considered rational or irrational? Explain how you know.

$\frac{35}{11} = 11\overline{)35} = 3.\overline{18}$

$$\begin{array}{r} 3.18 \\ \hline 35 \\ 33 \\ \hline 20 \\ 11 \\ \hline 90 \\ 88 \\ \hline 2 \end{array}$$

Repeating = fractions decimals (rational)

* I see repeating pattern starting.

Part C: What is the decimal equivalent to the quotient of $35 \div 11$ from Part B? Show your work.

$3.\overline{18}$