

Math 0989
Spring 2016
Quiz #2

Name: Key Date: January 27, 2016

1. Use the chart below to place a check mark indicating which sets the item on the left is a member of.

| | N | W | Z | Q | Q' | R |
|---------------|---|---|---|---|----|---|
| 16 | ✓ | ✓ | ✓ | ✓ | | ✓ |
| $\sqrt{5}$ | | | | | ✓ | ✓ |
| $\frac{2}{7}$ | | | | ✓ | | ✓ |
| -9 | | | ✓ | ✓ | | ✓ |
| 0 | | ✓ | ✓ | ✓ | | ✓ |

Note: Q' means the set of not Rational Numbers or Irrational!

2. Write the "unique" Prime Factorization of 76 and 100.

$$\begin{array}{l}
 76 = 2 \cdot 2 \cdot 19 \\
 \wedge = 2^2 \cdot 19 \\
 \textcircled{2} \cdot 38 \\
 \wedge \\
 \textcircled{2} \cdot \textcircled{19}
 \end{array}
 \qquad
 \begin{array}{l}
 100 = 2 \cdot 2 \cdot 5 \cdot 5 \\
 \wedge = 2^2 \cdot 5^2 \\
 \textcircled{2} \cdot 50 \\
 \wedge \\
 \textcircled{2} \cdot 25 \\
 \wedge \\
 \textcircled{5} \cdot \textcircled{5}
 \end{array}$$

3. Convert 0.760 to a fraction. **ALWAYS REDUCE!**

$$\frac{760}{1000} = \frac{76}{100} = \frac{\boxed{2} \cdot \boxed{2} \cdot 19}{\boxed{2} \cdot \boxed{2} \cdot 5 \cdot 5} = \frac{19}{25}$$

4. Convert the Non-Terminating decimal, $0.\overline{44}$ in to a fraction. Show all work!

$$\text{Let } x = 0.4444\dots$$

$$100x = 100 \cdot 0.4444\dots$$

$$100x = 44.4444\dots$$

$$- x = 0.4444\dots$$

$$99x = 44$$

$$x = \frac{44}{99} = \frac{4 \cdot \cancel{11}}{9 \cdot \cancel{11}} = \frac{4}{9}$$

5. Some Rational numbers are real. True or False? Write a sentence explaining your answer.

True, however if only some are real what is all the others? So, false!

All Rational numbers are Real.