

Math 206 - Quiz 1

January 26, 2011

Name key

Score _____

Show all work to receive full credit. Supply explanations when necessary. DO NOT USE A CALCULATOR FOR ANY PART OF THIS QUIZ.

1. (1 point) Use any method to find the decimal form of the fraction $\frac{3}{16}$.

$$\begin{array}{r} 625 \\ \times 3 \\ \hline 1875 \end{array}$$

$$\frac{3}{2^4} \cdot \frac{5^4}{5^4} = \frac{3 \cdot 625}{10000} = \frac{1875}{10000} = 0.1875$$

2. (1 point) Give an example of an irrational number that is only slightly greater than your result from problem #1.

0.187501001000100001...

NEITHER REPEATS NOR TERMINATES.

3. (1 point) The calculator on Sarah's iPod told her that $\frac{5}{23} = 0.2173913$. What would you tell Sarah about this result?

THE RESULT IS INCOMPLETE!

$\frac{5}{23}$ HAS A REPEATING DECIMAL FORM AND THE REPETEND HAS 22 DIGITS OR FEWER.

4. (1 point) Give an example of integer that is not a whole number. Give an example of a rational number that is not an integer.

INTEGER NOT WHOLE: -5

RATIONAL NOT INTEGER: $-\frac{7}{13}$

5. (1 point) One number below has a terminating decimal form, one has a repeating decimal form, and one has a non-repeating, non-terminating decimal form. Without attempting to compute the decimal forms, explain which is which and how you know.

$$\frac{9}{24} = \frac{3}{8} = \frac{3}{2^3}$$

TERMINATES BECAUSE DENOM HAS ONLY FACTORS OF 2/5.

$$\frac{4}{150} = \frac{2}{75} = \frac{2}{3 \cdot 5^2}$$

REPEATS BECAUSE DENOM HAS FACTORS OTHER THAN 2/5

$\sqrt{2}$

NEITHER REPEATS NOR TERMINATES.

$\sqrt{2}$ IS

IRRATIONAL.