

Math 206 - Quiz 1

January 18, 2012

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) Write 12345.678 in expanded form.

$$1 \times 10^4 + 2 \times 10^3 + 3 \times 10^2 + 4 \times 10^1 + 5 \times 10^0 + 6 \times 10^{-1} + 7 \times 10^{-2} + 8 \times 10^{-3}$$

2. (1 point) Use any method (Not a calculator!) to find the decimal form of the fraction $\frac{13}{40}$.

$$\frac{13}{40} \cdot \frac{25}{25} = \frac{325}{1000} = 0.325$$

3. (1 point) Give an example of an irrational number that is only slightly less than your result from problem #2.

$$0.32498988988898888 \dots$$

IRRATIONAL BECAUSE IT NEITHER REPEATS NOR TERMINATES

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

0 IS THE ONLY WHOLE NUMBER THAT IS NOT NATURAL.

$-\frac{7}{13}$ IS RATIONAL BUT NOT AN INTEGER

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.

$$\frac{18}{24} \downarrow \frac{3}{4} = \frac{3}{2^2}$$

TERMINATES ---
PRIME FACTORIZATION OF DENOM HAS ONLY 2's

$$\frac{145}{75} \downarrow \frac{29}{15}$$

REPEATS ---
LOWEST TERMS & PRIME FACT OF DENOM HAS A 3

$\sqrt{5}$ NEITHER REPEATS NOR TERMINATES ---
 $\sqrt{5}$ IS IRRATIONAL.