

Quiz 6A, MTH 2010 - No Calculators

Dr. Graham-Squire, Fall 2015

Name: Key

1. (3 points) If k represents an irrational number, which of the following operations must *always* result in an irrational number? Explain your reasoning!

× (A) $k - k = 0$

If $k = \sqrt{2}$, then $k \times k = (\sqrt{2})^2 = 2$

(B) $k \times k$ × ← which is rational, so B is wrong

× (C) $k \div k = 1$

(D) $k + k$

2. (2 points) Simplify the expression by factoring and canceling:

$$\frac{7 \cdot \cancel{35} \cdot \cancel{11}^1}{11 \cdot 40 \cdot 8} + \frac{\cancel{13}^1 \cdot \cancel{16}^1}{32 \cdot \cancel{26}^2}$$

$$= \frac{7}{8} + \frac{1}{4} \cdot \frac{2}{2}$$

$$= \frac{7}{8} + \frac{2}{8} = \boxed{\frac{9}{8}}$$

3. (3 points) T-shirts are on sale for 20% off. Tasha paid \$8.73 for a shirt. What is the regular price of the shirt? There is no tax on clothing purchases under \$175.

Let p represent the regular price of a t-shirt. Which of the following equations is correct? Explain/show your reasoning!

(A) $0.8p = \$8.73$

(B) $\$8.73 + 0.2 \times \$8.73 = p$

(C) $1.2 \times \$8.73 = p$

(D) $p - 0.2 \times \$8.73 = p$

$$p - 0.2p = 8.73$$

or $0.8p = 8.73$

4. Write the rational number $\frac{17}{33}$ as a repeating decimal.

$$\frac{17}{33} = \frac{17 \times 3}{33 \times 3} = \frac{51}{99} = 0.\overline{51}$$

or

$$\begin{array}{r} 0.515 \text{ etc} \\ 33 \overline{) 17.000} \\ \underline{-165} \\ 50 \\ \underline{-33} \\ 170 \\ \underline{-165} \\ 5 \text{ etc} \end{array} \Rightarrow 0.\overline{51}$$