

3 Quiz 3 MAT 1275 Professor Chiu

Name: _____

- This quiz consists of 2 questions, each worth 5 points, for a total of 10 points.
- You have 10 minutes to complete the quiz.
- Show all work and justify your answers.
- Scientific calculators are allowed.
- Wishing you success.

concept (s) $(3) 2^a 2^b = 2^{a+b}$
 $(1) (2^a)^b = 2^{ab}$ $(4) 2^{-a} = \frac{1}{2^a}$
 $(2) \frac{2^a}{2^b} = 2^{a-b}$ $(5) (2^a 3^b)^c = 2^{ac} 3^{bc}$

1. Evaluate

(Classify $\begin{matrix} 2 \text{ base} \\ 3 \text{ base} \\ 5 \text{ base} \end{matrix}$) $\Rightarrow \left(\frac{2^3}{2^2} \cdot \frac{3^{-2}}{3^4} \cdot \frac{5^{-8}}{5^{-9}} \right)^{-2}$

concept (2) $\Rightarrow \left(2^{3-(-2)} \cdot 3^{(-2)+(-4)} \cdot 5^{(-8)-(-9)} \right)^{-2}$

$\Rightarrow \left(2^5 \cdot 3^{-6} \cdot 5^1 \right)^{-2} = 2^{5 \cdot (-2)} \cdot 3^{-6 \cdot (-2)} \cdot 5^{1 \cdot (-2)}$
 $= 2^{-10} \cdot 3^{12} \cdot 5^{-2} = \frac{3^{12}}{2^{10} \cdot 5^2}$

2. Multiply and write your answers in Scientific Notation:

$(2 \times 10^3)(5.1 \times 10^{-7})$
 $= 2 \times 10^3 \times 5.1 \times 10^{-7}$ ("(") don't do anything here)

$= 2 \times 5.1 \times 10^3 \times 10^{-7}$

$= 10.1 \times 10^{-4}$

move decimal to the left

$= 1.01 \times 10 \times 10^{-4} = 1.01 \times 10^{1-4} = 1.01 \times 10^{-3}$