Math 103 - Some problems from sections 1.1, 1.2, 1.3 Name_____

MUST SHOW STEPS WHENEVER APPROPRIATE

Classify each number as one or more of the following: natural number, whole number, integer, rational number, irrational number, or real number.

1) $\frac{53}{76}$ (Fraction of 9- to 10- year-old children at a day camp)

2) 834 (Number of students in the school)

3) $70\sqrt{7}$ (Length in feet of the playground)

State whether the equation is the result of an identity, commutative, associative, or distributive property.

4) $-(2x + 8y) = -2x - 8y$

5) $(4 \cdot 3) \cdot 5 = 4 \cdot (3 \cdot 5)$

6) $3 + 2 = 2 + 3$

Write the number as an exponential expression using the given base.

7) $\frac{1}{243}$ (base 3)

Evaluate the expression.

8) -5^4

9) $\left(\frac{5}{6}\right)^{-2}$

10) 3^{-2}

11) $\frac{1}{7^{-3}}$

Use properties of exponents to simplify. Write answers with positive exponents.

12) $x^{-7} \cdot x^4 \cdot x^{-3}$

13) $4a^9 \cdot 2a^{-3}$

14) $\frac{3^{-2}}{3^4}$

15) $\frac{4^{-5}}{4^{-3}}$

16) $(5x^4)^{-3}$

17) $\frac{12x^{-4}y^7}{6x^5}$

18) $\left(\frac{5x}{y^3}\right)^{-4}$

19) $\left(\frac{-3x}{y^4}\right)^{-3}$

Use properties of exponents to simplify. Write answers with positive exponents.. Assume variables represent nonnegative numbers.

20) $\frac{7^{3}m \cdot 7^{6}m}{7^{-7}m}$

21) $\frac{8^{-6}p \cdot 8^{-8}p}{8^{7}p^{3}}$

22) $\frac{x^{-7}}{(8x)^{-7}}$

23) $\frac{(6x)^{9}}{x^{9}}$

24) $\frac{x^{-2}(x^{9})^{-2}}{(x^{-5})^{-5}}$

Evaluate each expression following the order of operations.

25) $\frac{4^{3} - 3^{4}}{8} + \frac{3}{4}$

26) $\frac{-5^{2} + 1}{\frac{2}{5}}$

Write the number in scientific notation.

27) 76,197

28) 0.00001094

29) Convert 8.672×10^{7} to standard form

30) Convert 7.0262×10^{-7} to standard form

31) If P dollars is deposited in a savings account paying r% annual interest, then the amount A in the account after x years is given by $A = P(1 + \frac{r}{100})^{x}$. Find A if P = \$300, x = 5 years, and r = 3%.

32) In a certain year the Federal debt held by the public was \$1.47 trillion, while the population of the United States was 326 million. Approximate the national debt per person.

33) A movie opened with a first day attendance of 1,200,000. If the average cost of a ticket was \$8, how much was collected from ticket sales on the first day?

Evaluate the expression and write the answer in standard form.

34) $\frac{(4 \times 10^{-4})}{(8 \times 10^{-3})}$