Name:_____ Date:_____

Math 9 Section 2.2 Powers of Tens and Zeros

1. Evaluate the following without a calculator:

a) 10^5	b) -7^0	c) 10^{-3}	d) 10^2
e) 100^2	f) $(1+99)^0-4$	g) $-4-(22\times4)^0$	h) $(10^{10}-5)^0$
i) $10^2-5^0\times(-2)$	j) $10^{-4}\times10^3$	k) $12\times3^2+1999^0$	L) $3\times10^3+2\times10^2$

2. Write each of the following as a power of 10:

a) 945	b) 12,391	c) 9385
d) 12,035	e) 1,003,840	f) 30,003,152

3. Write each of the following in standard form:

a) $9\times10^3+8\times10^2+7\times10+3$	b) $8\times10^5+2\times10^3+8\times10^2+1$	c) $7\times10^7+6\times10^5+3\times10^2+1$
d) $5\times10^5+6\times10^4+9\times10^3+2\times10$	e) $1\times10^2+2\times10^5+9\times10^3+5$	f) $5\times10^8+1\times10^9+9\times100+1$

4. Solve for "x" in each of the following:

a) $10^x = 1,000,000$	b) $10^x = 0.00001$	c) $10^x = 10000$
d) $10^x = (1000)^3$	e) $100^x = 10^{22}$	f) $10^3 \times 10^4 = 10^x$

5. Given that a,b,c, and d are all single digit integers, what is the value of $a+b+c+d$?
   $9\times10^a + 8\times10^b + c\times10^2 + d = 8791$

6. The distance from the sun to the earth is $15\times10^{14}\,km$. If a space ship can travel at 10000km/s, how long will it take to travel from the earth to the sun?

7. The mass of an electron is 9.1×10^{-31} and the mass of a proton is 1.7×10^{-27}. How many electrons is equal to the mass of on proton?

8. Solve for "x" in each of the following equation:

$$\frac{16^x}{2^{3x}} = 128 \qquad \left(4^{x+1}\right)\left(2^5\right) = 65536$$