

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) $-4 - (22 \times 4)^0$	h) $(10^{10} - 5)^0$
i) $10^2 - 5^0 \times (-2)$	j) $10^{-4} \times 10^3$	k) $12 \times 3^2 + 1999^0$	l) $3 \times 10^3 + 2 \times 10^2$

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) $9 \times 10^3 + 8 \times 10^2 + 7 \times 10 + 3$	b) $8 \times 10^5 + 2 \times 10^3 + 8 \times 10^2 + 1$	c) $7 \times 10^7 + 6 \times 10^5 + 3 \times 10^2 + 1$
d) $5 \times 10^5 + 6 \times 10^4 + 9 \times 10^3 + 2 \times 10$	e) $1 \times 10^2 + 2 \times 10^5 + 9 \times 10^3 + 5$	f) $5 \times 10^8 + 1 \times 10^9 + 9 \times 100 + 1$

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  $a + b + c + d$  ?

$$9 \times 10^a + 8 \times 10^b + c \times 10^2 + d = 8791$$

6. The distance from the sun to the earth is  $15 \times 10^{14} \text{ km}$  . If a space ship can travel at  $10000 \text{ km/s}$ , how long will it take to travel from the earth to the sun?

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

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

$$\frac{16^x}{2^{3x}} = 128$$

$$(4^{x+1})(2^5) = 65536$$