**Math 9 Lesson 2-3 Applications of Powers**

Quiz tomorrow

**Part One: Writing Numbers Using Powers of 10**

The powers of 10 we looked at yesterday can be used to write numbers that are not powers. (A different form of expanding)

Example: Write the following numbers using powers of 10

1. 3452

So 3452 is (3 x 103) + (4 x 102) +(5 x 101) + (2 x 100) using powers of ten

1. 7 012 508

Now try writing this one on your own:

1. 658

**Part Two: Solving Problems Using Powers**

Sometimes we will have real world problems that involve powers as well

**Example 1:** Lyn has a square swimming pool, 2m deep with side length 4 m. The swimming pool is joined to a circular hot tub, 1 m deep with diameter 2m. Lyn adds 690g of chlorine to the pool and hot tub each week. This expression represents how much chlorine is present per 1 m3 of water:

$$\frac{690}{2 × 4^{2}+π ×1^{3} }$$

The suggested concentration of chlorine is 20g/m3 of water.

1. What is the concentration of Lyn’s pool and hot tub?
2. Is it close to the suggested concentration?

**Example 2:** A dish holds 100 bacteria. It is known that the bacteria double in number every hour. How many bacteria will be present after each number of hours?

1. 1 hour b) 5 hours c) n hours

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