March 3, 2022. HANDOUT on Pi, Formulas, and Homework Writing  **Mr. Rasmusen**

 I’ve looked carefully over your homeworks 8.4 and 8.5. I am glad to see improvement from 8.4 to 8.5, but we still will work more on this. I will hand out Teacher’s Answers for 8.4 and 8.5. On some of your homeworks, you will see I wrote REDO next to a problem. I want you to take a separate sheet of paper (not part of another homework you are doing, or your old homework) and give it title, date, and name, and then copy the Teacher’s Answer for the problems you have to redo. This is so you will get the style right. I’ll continue this with future homeworks if necessary. Hand the Redo in on Monday.

 In general, if you use a formula (e.g., A = bh/2 for a triangle’s area), write it as part of your answer. That should be the first step in your thinking, and it will show the teacher how you are working out the problem. If you get the formula wrong, the teacher will know that’s where you went wrong, instead of having to puzzle over a mass of numbers in a strange order.

 I have not required you to redo a question in homework 8.5 if you didn’t write the formula, but I will start requiring that in future homeworks.

**Note (1):**

“How I wish I

 Could calculate pie”

 -- Anonymous

 (See <https://aperiodical.com/2010/09/how-i-wish-i-could-calculate-pihunt/>). A mnemonic for p = 3.1415926..., which rounds to 3.141593, since “How” has 3 letters, “I” has 1, “wish” has 4, and so forth. "pi" would give "2." Recite this on Pi Day, March 14 (3/14).

**Note (2):** 1 Kings 7:23 says: "And he made a molten sea, ten cubits from the one brim to the other: it was round all about, and his height was five cubits: and a line of thirty cubits did compass it round about." Pi = 30/10 = 3 here, which is as true as pi = 3.14159265358979323846264338327950288419716939937510582097494. Both are approximations.

<https://www.khouse.org/articles/1998/158/> says there is an interesting possibility that scribes wrote “circumference”, “qv” in Hebrew, as “qvh”, to encode 111/106 (30) = 3141509433962. In Hebrew, letters stood for numbers: q = 100, v = 6, and h = 5. I think it’s probably coincidence.

**Note (3):** Suppose we do a code in English so 10 = a, 11 = b , 12 = c, and so forth, also putting code in for punctuation marks. Then convert the complete works of Shakespeare into this code. Call that list of numbers Z. Since the irrational number pi has infinite digits and no pattern, that means eventually the exact list Z will appear in the digits of pi. That gives you an idea of the crazy-big number of digits in an irrational decimal.

**Note (4):**  I do not expect you to memorize most of the volume formulas. I will give you a list of them on the test, and give you the trapezoid formula. You do have to memorize the rectangle, parallelogram, circle area, circle circumference, rectangular solid, and cylinder formulas.