Montlake Math Homework
Assigned January 9

2^n means $2 \times 2 \times \cdots \times 2$, n times. For example

$$2^1 = 2 \qquad 2^2 = 2 = 4 \qquad 2^3 = 2 \times 2 \times 2 = 8$$

1. Finish the table:

2^2	2^3	2^4	2^5	2^6	2^7	2^8	2^9
4							

2. Calculate

$$1 + 2 =$$

$$1 + 2 + 2^2 =$$

$$1 + 2 + 2^2 + 2^3 =$$

$$1 + 2 + 2^2 + 2^3 + 2^4 =$$

3. Can you figure out a pattern? What is $1 + 2 + 2^2 + 2^3 \cdots + 2^8$?

4. (For those who know how to add fractions.)

$$1 + 1/2 =$$

$$1 + 1/2 + 1/2^2 =$$

$$1 + 1/2 + 1/2^2 + 1/2^3 =$$

$$1 + 1/2 + 1/2^2 + 1/2^3 + 1/2^4 =$$

5. Can you figure out a pattern? What is $1 + 1/2 + 1/2^2 + 1/2^3 \cdots + 1/2^8$?

6. If you kept going forever, what do you think $1 + 1/2 + 1/2^2 + 1/2^3 \cdots$ would equal?