Chapters 2.4, 4.1
Tuesday, Week 3

Warmup

Evaluate:

1. $\sum_{i=1}^{4} \sum_{j=1}^{4} 1 =$
2. $\sum_{0 \le i < j \le 4} j =$
3. $\sum_{k=0}^{5} k =$
4. $\sum_{k=0}^{5} 5 - k =$
5. $\sum_{k=1}^{6} k - 1 =$

Summation

Twelve days of Christmas: How much of each type of present do you get? Find the sum this way.

What is the x^3 coefficient of $(a_3x^3 + a_2x^2 + a_1x + a_0)(b_3x^3 + b_2x^2 + b_1x + b_0)$?

Divisibility

Observations: If $30|n$ then $10|n$. If $25|n$ then $5|n$. If $18|n$ then $9|n$. Come up with a general rule:

Can you tell from looking at the digits whether a number is...

1. Divisible by 2?
2. Divisible by 3? 9?
3. 5? 10? 25?
4. 4? 8?
5. 11? 7??

Prove: If $a|b$ then $a|bc$ for any $c \in \mathbb{Z}$.

Today is Tuesday. What day of the week will it be 2101 days from now?