For all positive integers n, if a set has n elements, then the number of 2-element subsets that is has is $n(n-1)/2$.

For all integers $n \geq 1$, the number $5^n - 1$ is a multiple of 4.

For all integers $n \geq 1$, $1^2 + 2^2 + \cdots + n^2 = \dfrac{n(n+1)(2n+1)}{6}$.

For all positive integers n, $1 + 2 + 4 + 8 + \cdots + 2^n = 2^{n+1} - 1$.

For all integers $n \geq 4$, $2^n < n!$. (Note: $n!$ is "n factorial" which you learned in MTH 225)

For all integers $n \geq 1$, 6 divides $n^3 - n$.

For all positive integers n, $11^n - 6$ is divisible by 5.

If x is an even integer and y is an odd integer, then $x + y$ is an odd integer.

If x is an even integer and y is any other integer, then xy is an even integer.

If x and y are odd integers, then $x + y$ is an even integer.

For every integer n (positive, negative, or zero), if n is an odd integer then n^3 is an odd integer.

For every integer n (positive, negative, or zero), if n is a multiple of 4 then $n^2 - 1$ is a multiple of 4.

If S is a set with n elements, then S has 2^n subsets.

If S is a set with n elements (and $n \geq 3$), then it has $\frac{n^3 - 3n^2 + 2n}{6}$ three-element subsets.