Example 1.4. Draw a convex n-gon and all of its diagonals. How many segments (sides and diagonals) do we get?
Every point belongs to $n-1$ segments. If we multiply this by the number of points, we get $n(n-1)$. But every segment was counted twice, because it has two endpoints (two "legs"). Thus the total number of segments is $\frac{n(n-1)}{2}$.