Problem of the Week
Problem E
Coin Combinations

In Canada, a $2 coin is called a toonie, a $1 coin is called a loonie, and a 25¢ coin is called a quarter. Four quarters have a value of $1.

How many different combinations of toonies, loonies, and/or quarters have a total value of $100?

NOTE: In solving this problem, it may be helpful to use the fact that the sum of the first $n$ positive integers is equal to \( \frac{n(n+1)}{2} \). That is,

\[
1 + 2 + 3 + \cdots + n = \frac{n(n + 1)}{2}
\]

For example, the sum of the first 10 positive integers is

\[
1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 = \frac{10(10 + 1)}{2} = \frac{10(11)}{2} = 55
\]