# Example 1

- **Conjecture:** $n^2 + n$ is always even
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| $n$ | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| $n^2 + n$ | 2 | 6 | 12 | 20 | 30 | 42 | 56 | 72 | 90 | 110 |

- Sure seems to always be even... is this a proof??

**Proof:**

1. $n^2 + n = (n + 1)n$.
2. $n, n + 1$ are two consecutive numbers.
3. Therefore one is even and one is odd.
4. Fact: odd * even = even.