

MAC 1140
LA session

Week 14

1. Let S_n denotes the statement: *2 is a factor of $n(n+1)$* . Write the statements $S_1, S_2, S_3, S_k, S_{k+1}$.
2. Let S_n be the statement: $1 + 2 + 3 + 4 + \dots + n = \frac{n(n+1)}{2}$. Write the statements $S_1, S_2, S_3, S_k, S_{k+1}$
3. Let S_n be the statement: $\sum_{i=1}^n \frac{1}{i(i+1)} = \frac{n}{n+1}$. Write the statements $S_1, S_2, S_3, S_k, S_{k+1}$.
4. Use the Principle of Mathematical Induction to show that the statements below are true for all $n \geq 1$.
 - a) $1 + 2 + 3 + 4 + \dots + n = \frac{n(n+1)}{2}$
 - b) $n^3 - n + 3$ is divisible by 3
 - c) $\sum_{i=1}^n \frac{1}{i(i+1)} = \frac{n}{n+1}$