Show all of your work and organize that work well. Use mathematical induction to prove the following statement is true for all natural numbers $n$ :

$$
\sum_{i=1}^{n} \frac{1}{i(i+2)}=\frac{3 n^{2}+5 n}{4(n+1)(n+2)} \quad \forall n \in \mathbb{N}
$$

