

Algebra 2 Honors Math Induction Problems

Using the model from the class notes, prove by math induction:

1. $\sum_{i=1}^n 2i = n^2 + n$ 2. $\sum_{i=1}^n (2i - 1) = n^2$

3. $\frac{1}{1 \cdot 2} + \frac{1}{2 \cdot 3} + \frac{1}{3 \cdot 4} + \dots + \frac{1}{n(n+1)} = \frac{n}{n+1}$ 4. $\sum_{i=1}^n 2^i = 2(2^n - 1)$

5. $\sum_{i=1}^n i^2 = \frac{n(n+1)(2n+1)}{6}$