Lesson 9.6 Practice: Mathematical Induction

School Launch · Algebra II · Unit 9: Sequences and Series · Worksheet A

Calculator for decimals

Name _____ Date _____ Score _____ / 10

Show your work under each problem, one step per line, and check your answer. Word problems: name the unknown, write the equation, solve, and answer in a sentence with units.

1. The formula $\sum_{k=1}^{n} k^2 = \frac{n(n+1)(2n+1)}{6}$ is proved by induction. Check the base case $n = 1$ and use the formula to find the sum for $n = 14$. EASY

2. The formula $\sum_{k=1}^{n} 2k - 1 = n^2$ is proved by induction. Check the base case $n = 1$ and use the formula to find the sum for $n = 20$. EASY

3. The formula $\sum_{k=1}^{n} 2k - 1 = n^2$ is proved by induction. Check the base case $n = 1$ and use the formula to find the sum for $n = 17$. EASY

4. The formula $\sum_{k=1}^{n} k = \frac{n(n+1)}{2}$ is proved by induction. Check the base case $n = 1$ and use the formula to find the sum for $n = 24$. MEDIUM

5. The formula $\sum_{k=1}^{n} 2k - 1 = n^2$ is proved by induction. Check the base case $n = 1$ and use the formula to find the sum for $n = 21$. MEDIUM

6. The formula $\sum_{k=1}^{n} 2k - 1 = n^2$ is proved by induction. Check the base case $n = 1$ and use the formula to find the sum for $n = 29$. MEDIUM

7. The formula $\sum_{k=1}^{n} k^2 = \frac{n(n+1)(2n+1)}{6}$ is proved by induction. Check the base case $n = 1$ and use the formula to find the sum for $n = 18$. MEDIUM

8. The formula $\sum_{k=1}^{n} k^2 = \frac{n(n+1)(2n+1)}{6}$ is proved by induction. Check the base case $n = 1$ and use the formula to find the sum for $n = 29$. HARD

9. The formula $\sum_{k=1}^{n} k = \frac{n(n+1)}{2}$ is proved by induction. Check the base case $n = 1$ and use the formula to find the sum for $n = 14$. HARD

10. The formula $\sum_{k=1}^{n} k = \frac{n(n+1)}{2}$ is proved by induction. Check the base case $n = 1$ and use the formula to find the sum for $n = 10$. HARD