Skill Mastery Quiz 8

Communicating in Math (MTH 210-01)
Winter 2020

Name:

P2-2 For which of the following situations is it more appropriate to use induction (circle one).

1. For all integers a and b,
$$(a+b)^2 \equiv (a^2+b^2) \pmod 2.$$
2. For each natural number n,
$$1+3+5+\cdots+(2n-1) = n^2.$$

.

Explain why you chose that statement to prove by induction.

For the statement you chose, state what your steps would be in a proof by induction.

S1-1 Let $A = \{1, \{2\}, \{3, 4\}, 5\}$. From the list $\in, \notin, =, \neq, \subseteq, \not\subseteq, \subset, \not\subset$, fill in a correct symbol for each of the following:

- $\{1\}$____A
- $\{2\}$____A
- $\{1, 2, 3, 4, 5\}$____A

S2-1 Let $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$ be the universal set. Let $A = \{3, 4, 5, 6, 7\}$ and $B = \{1, 5, 7, 9\}$.

1. Find $A \cap B$
2. Find $A \cup B$
3. Find A^C
4. Find $A \setminus B$ (or $A - B$).