## Name:

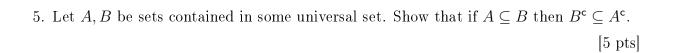
Please write your solutions in an organized and systematic manner; use scratch paper to solve the problems first and then write up a neat solution with the relevant work shown.

1. Prove that the sum of two odd integers is even.

[5 pts]

2. Let A and B be sets. Prove that if  $A \subseteq B$  then  $A \cap B = A$ . [5 pts] (Hint: Remember, to prove two sets X, Y are equal you need to prove  $X \subseteq Y$  and  $Y \subseteq X$ ).

[5 pts]
$,\ldots,n\}.$
[5 pts]
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6. (extra credit) [5 pts]

Let  $A = \{0, 1, 2, 2, 4, 5\}$ . Prove that if m is an element of every subset of A then m = 1.

Let  $A = \{0, 1, 2, 3, 4, 5\}$ . Prove that if x is an element of every subset of A then x = 1.