1. The Well-Ordering Principle (WOP) states that every nonempty subset of Z^+ contains _____.
(3 points)

   A. a largest element

✓ B. a smallest element

   C. a total order

   D. a dual subset

2. The induction step for the Principle of Mathematical Induction (PMI) insures which of the following logical implications (denoted by →) for an arbitrary integer *k* in Z^+?
(3 points)

   A. p(k+1)→p(k)

   B. p(k)→p(1)

✓ C. p(k)→p(k+1)

   D. p(k-1)→p(k)

3. Which one of the following set relations is valid for the recursively defined sets A and B below?

$$\{1 \in A, \forall y \in A, y + 1 \in A\}$$

$$\{2 \in B, \forall z \in B, z \times 2 \in B\}$$

(3 points)

1. A is a proper subset of B.
2. ✓ B is a proper subset of A.
3. The symmetric difference between A and B is the empty set.
4. None of the above.