

Quiz #4

Tuesday, June 28 2016

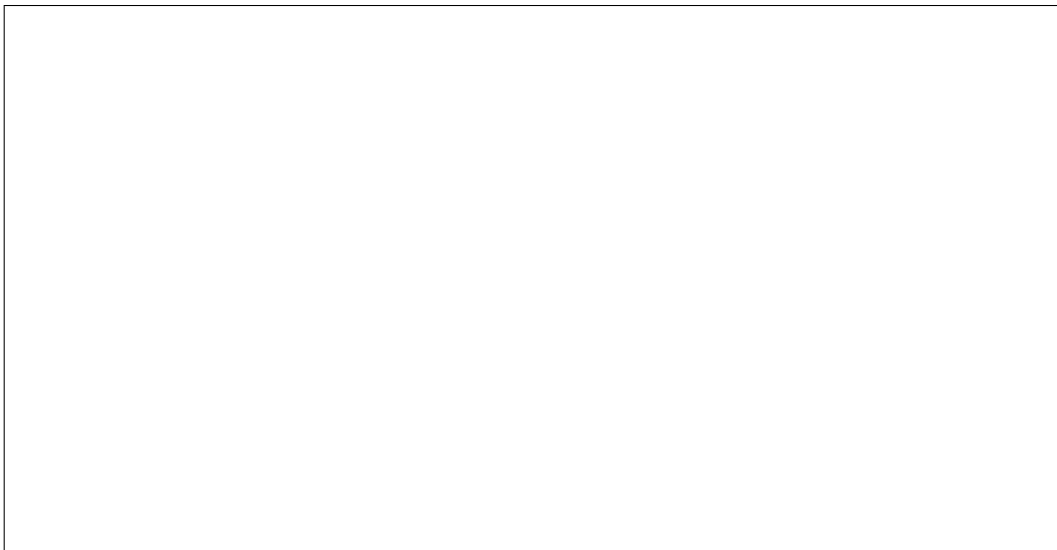
NAME: _____

Please write clearly and properly.

Problem	Grade
1	
2	
3	
4	
Total	

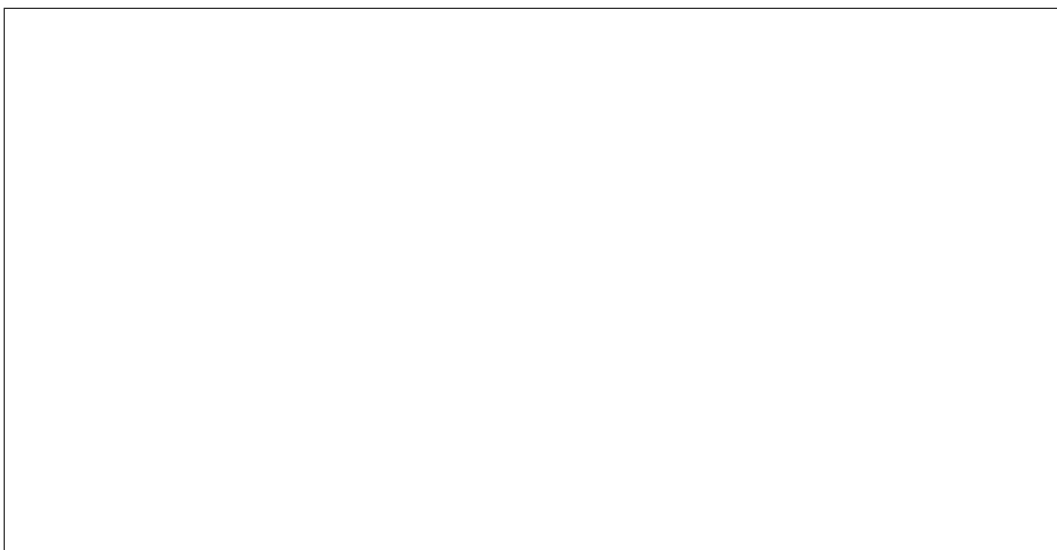
Problem 1. Prove or disprove the following statement:

Statement. For any two finite sets A and B , if $|\mathcal{P}(A)| = |\mathcal{P}(B)|$, then $|A| = |B|$.



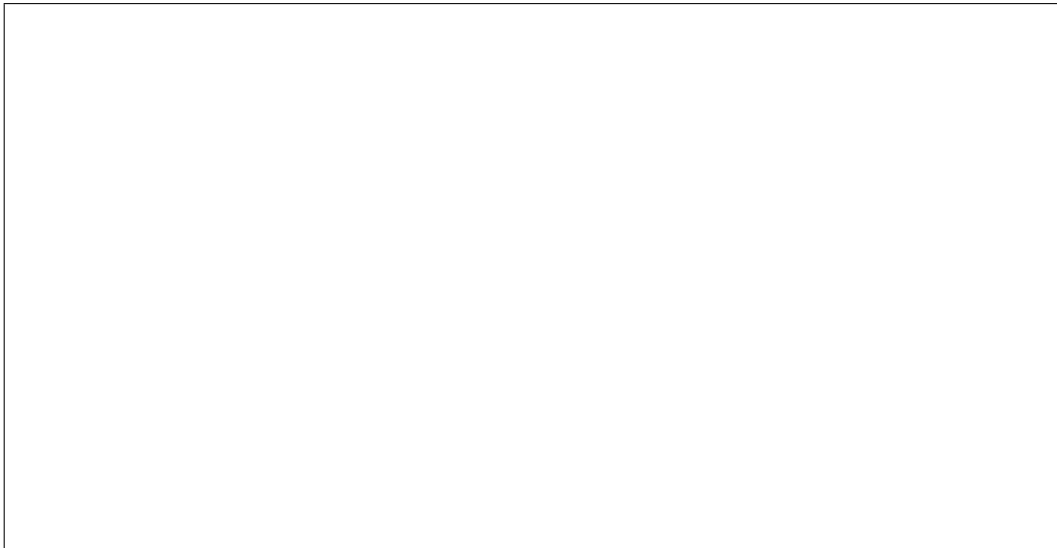
Problem 2. Prove or disprove the following statement:

Statement. For any integer n , if $4|n$ and $6|n$, then $24|n$.



Problem 3. Prove or disprove the following statement:

Statement. The product of any two consecutive integers is an even integer.



Problem 4. Consider the following relations on the set $\{x, y, z\}$:

$$R_1 = \{(x, x), (x, y), (x, z)\}$$

$$R_2 = \{(x, x), (x, y), (y, x), (y, z), (z, y), (z, z)\}$$

$$R_3 = \{(x, x), (y, y), (y, z), (z, y), (z, z)\}$$

$$R_4 = \{(x, x), (x, y), (y, y), (z, x), (z, y), (z, z)\}$$

Which of these relations are reflexive? Which are symmetric? Which are transitive? Which are antisymmetric? *No explanation is required.*

