

YOUR NAME: _____

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Read each problem **very carefully** before starting to solve it. Each problem is worth 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

- (a) Write an inductive definition for $S = \{2, 4, 10, 28, 82, 244, \dots\}$.

Basis:

Induction:

- (b) Consider $S = \{n \in \mathbb{N} : n \bmod 5 = 3\}$.

- Then $S = \{ \quad \quad \quad, \dots \}$.

- An inductive definition of S is as follows:

Basis:

Induction:

- (c) Write an inductive definition of $S = \{a^m b^n : m, n \in \mathbb{N}, m, n > 0\}$.

Basis:

Induction: