

Name: _____

Directions: Show all work. No credit for answers without work. Unless otherwise specified, you may leave your answers in terms of factorials and binomial/multinomial coefficients.

1. [5 parts, 2 points each] Let $A = \{1, 2, 3\}$, $B = \{\{1, 2, 3\}\}$, $C = \{\{1, 2\}, 3\}$, and $D = \{\emptyset\}$.

(a) Determine the sizes of A , B , C , and D .

(b) Find $A \cap B$.

(c) Find $C - A$.

(d) Find $\mathcal{P}(C)$.

(e) Find $\mathcal{P}(B) \triangle D$.