

Mathematics 260 Written Assignment #1 DUE: 1-22-18

1. Create a .tex file that will produce the bottom portion of page 14 of the textbook starting with “**1.4 Power Sets**”. Process your .tex file with \LaTeX to produce a pdf. Please turn in the .tex file as well as the pdf. Strive to make your pdf look as much like that portion of the text as possible. Feel free to use the documents in the “Latex Help” tab on the course homepage or come see me for help if necessary.

2. For sets A and B with $B \subseteq A$, the **power set of A relative to B** is the set defined by

$$\mathcal{P}(A : B) = \{X \in \mathcal{P}(A) : B \subseteq X\}.$$

a. Let $A = \{a, b, c, x, z\}$ and $B = \{a, b, c\}$. Find $\mathcal{P}(A : B)$.

b. Write a sentence or two that justifies the equality $\mathcal{P}(S : \emptyset) = \mathcal{P}(S)$.

c. Let B be a subset of A such that $|B| = m \leq n = |A|$. Find $|\mathcal{P}(A : B)|$ and write a brief justification for your answer.