

Work on these with your partner(s) at the board

1. Assume $A, B,$ and C are all subsets of some universal set U .
Are the following statements true or false? Prove your conclusions.
(FYI, sketching a Venn diagram often helps me build some intuition for how to approach a proof.)
 - (a) If $A \cap C \subseteq B \cap C$, then $A \subseteq B$
 - (b) If $A \cup C \subseteq B \cup C$, then $A \subseteq B$
 - (c) If $A \cup C = B \cup C$, then $A = B$
 - (d) If $A \cap C = B \cap C$, then $A = B$
2. If $|A| = 2$, what is $|P(A)|$? If $|A| = 3$, what is $|P(A)|$? If $|A| = 4$, what is $|P(A)|$?
If $|A| = n$, make a conjecture for $|P(A)|$

Sundstrom, Exercise 5.2.13