

Name \_\_\_\_\_

1. (2 points) Rewrite the following using mathematical symbols.

The set consisting of the elements  $a$  and  $b$  is not a subset of the set  $\{b, c, d\}$ .

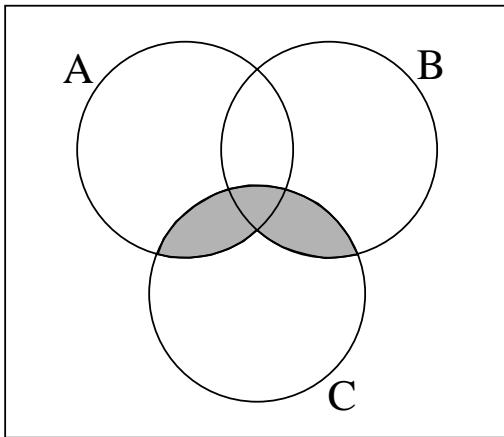
2. (2 points) Let  $A = \{i + j \mid i \in \{1, 2, 3\} \text{ and } j \in \{1, 2\}\}$ .

(a) Explicitly write down the set  $A$  showing each of its elements.

(b) What is the cardinal number of the set  $A$ .

3. (2 points) Elizabeth Shaw has just learned how to print her name. She will use one color of crayon to print out her first name, but then a second color of crayon to print out her last name. How many such colorings are possible if she begins with a box of 16 differently colored crayons?

4. (2 points) Use set notation to identify the following shaded region.



5. (2 points) Shade the portion of the Venn diagram that represents the set  $\bar{A} \cap B$ .

