

MATH110(0402) Elementary Mathematical Models

Quiz 4, Wednesday, March 11, 2009

Name: _____

Show all work clearly and in order, and circle your final answers. Justify your answers algebraically whenever possible. Calculator is allowed in this quiz. You have 10 minutes to take this 12 point quiz. Only the first 10 points you gain will count.

1. (6 points) Let $S = \{1, 2, 3, 4, 5, a, b, c\}$ be the universal set.

Let $A = \{1, 3, b\}$, $B = \{x \in S \mid x \text{ is a number}\}$, and $C = \{a, b, c\}$. Find the following:

a) $A \cap B$

b) $C \cup \emptyset$

c) $C' \cap B'$

d) $A \cup \emptyset$

e) $(A \cap B)' \cup C$

f) $B \times (A \cap C)$

2. (6 points) Let S denote the set of all purses in Patty's Purse Shoppe and let:

B be the set of all purses that are black.

L be the set of all purses that are made with leather.

Z be the set of all purses that have a zipper closing.

Find an expression in terms of B, L, Z (as an intersection, union, complement, etc.) for each of the following.

a) The set of purses that are Black and have a zipper closing.

b) The set of purses that are leather and have a zipper closing but are not black.

c) The set of purses that have none of the three of these traits.