Math 200 - Quiz 5

Name ___key___

October 3, 2012

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (1 point) Let $A = \{1, 2, 3\}$ and $B = \{2, 5\}$. List the elements of $B \times A$.

$$B \times A = \{ (2,1), (2,2), (2,3),$$
$$(5,1), (5,2), (5,3) \}$$

2. (1 point) Suppose $A = \{1, 2, 3, x, y, z\}$. Determine $n(A \times \emptyset)$ and explain your reasoning.

$$A \times \emptyset = \emptyset \implies N(A \times \emptyset) = 0$$

3. (3 points) Upon leaving a local grocery store, 93 shoppers were asked about their purchases.

- 23 bought eggs
- 51 bought bread
- 52 bought milk
- 14 bought eggs and bread
- 30 bought bread and milk
- 8 bought eggs and milk
- 6 bought eggs, bread, and milk

(a) Organize the data in a Venn diagram.

See Attached Sheet.

(b) How many shoppers bought none of these three items?

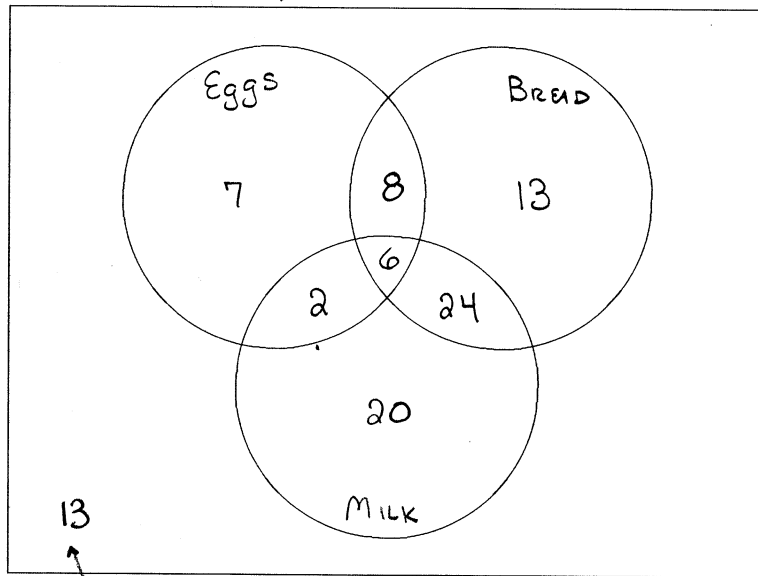See Attached Sheet.   Answer is $\boxed{13}$

(c) How many shoppers bought only one of the three items?

$$7 + 13 + 20 = \boxed{40}$$

93 shoppers

Eggs

7   8   13   Bread

6

2   24

20

Milk

13

$7 + 8 + 13 + 2 + 6 + 24 + 20 = 80$

$93 - 80 = \boxed{13}$