

MAT 119
Quiz #4
September 29, 2005

Name: key

You may not use your notes. Please show all of your work. An answer without justification will receive little credit.

- (1) Let $C = \{x \in \mathbb{Z} : x|1500\}$ and let $D = \{x \in \mathbb{Z} : x|3000\}$. Show that $C \subset D$.

Let $x \in C$.

Then $x|1500$.

There is $k \in \mathbb{Z}$ s.t.

$$1500 = xk$$

$$\text{Thus } 3000 = 2xk = x(2k)$$

Thus, $x|3000$.

So, $x \in D$.

Therefore $C \subset D$.

- (2) Let $A = \{a, b, c\}$ and $B = \{a, d, e\}$. Compute the following:

a.) $2^A = \{ \emptyset, \{a\}, \{b\}, \{c\}, \{a,b\}, \{a,c\}, \{b,c\}, \{a,b,c\} \}$

b.) $A \cup B = \{a, b, c, d, e\}$

c.) $A \cap B = \{a\}$

d.) $A - B = \{b, c\}$

e.) $A \Delta B = A - B \cup B - A = \{b, c\} \cup \{d, e\}$
 $= \{b, c, d, e\}$