MATH 110 – QUIZ 2 – 11 SEPTEMBER 2009

Answer all of the following questions in the space provided. Show all work as partial credit may be given.

1. Suppose that all of the 1000 first–year students at a certain college are enrolled in a math or an English course. Suppose that 400 are taking both math and English and 600 are taking English.

(a) (3 pts.) How many are taking a math course? (Hint: Use the inclusion-exclusion principle.)

$M = \{\text{students taking math}\}$

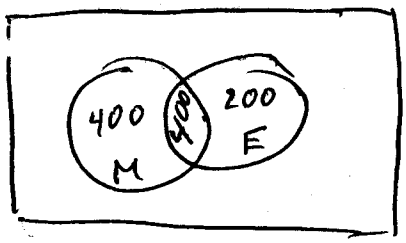
$E = \{\text{students taking English}\}$

$n(M \cup E) = n(M) + n(E) - n(M \cap E)$

$1000 = n(M) + 600 - 400$

$\boxed{n(M) = 800}$

(b) (2 pts.) How many are taking a math course but not an English course? (Hint: Draw a Venn diagram.)



$\boxed{n(M \cap E') = 400}$

(c) (2 pts.) How many are taking an English course but not a math course? (Hint: Consult the Venn diagram you drew for part (b).)

$\boxed{n(E \cap M') = 200}$

2. (3 pts.) Draw a three–circle Venn diagram and shade in the set $R \cap S' \cap T'$.