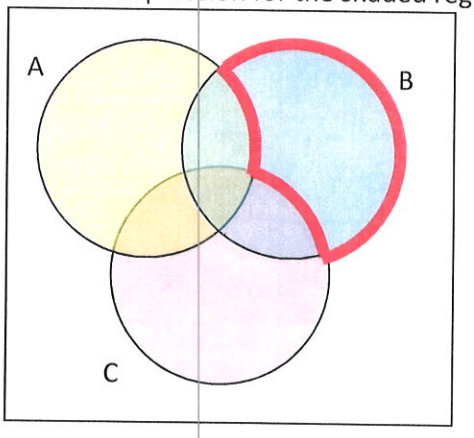
MAT 100, Quiz #6, Summer 2017 Name KEY

Instructions: Show all work. Use exact answers unless otherwise directed to round.

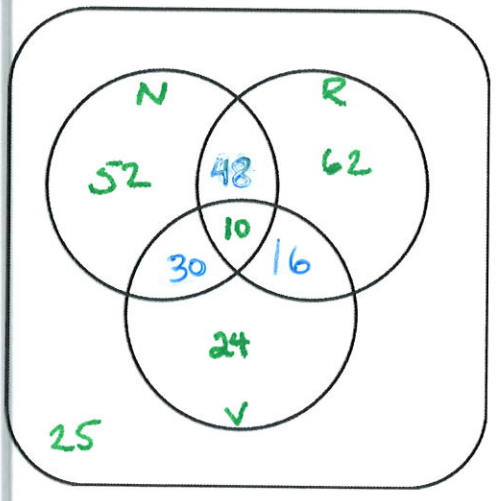
1. Let A = {1, 2, 3, 4, 5} B = {1, 3, 5} C = {4, 6} U = {numbers from 0 to 10}. Find the following sets:
   a. $A \cup C$ $= \{1, 2, 3, 4, 5, 6\}$
   b. $B \cap C$ $\emptyset$ or $\{\}$
   c. B^c $= \{0, 2, 4, 6, 7, 8, 9, 10\}$

2. Write an expression for the shaded region.



$(B - A) - C$
or
$(A^c \cap C^c) \cap B$

3. Use the information below to fill in the Venn Diagram
   A survey was given asking whether they watch movies at home from Netflix, Redbox, or a video store. Use the results to determine how many people use Redbox.
   - 52 only use Netflix
   - 62 only use Redbox
   - 24 only use a video store
   - 16 use only a video store and Redbox
   - 48 use only Netflix and Redbox
   - 30 use only a video store and Netflix
   - 10 use all three
   - 25 use none of these



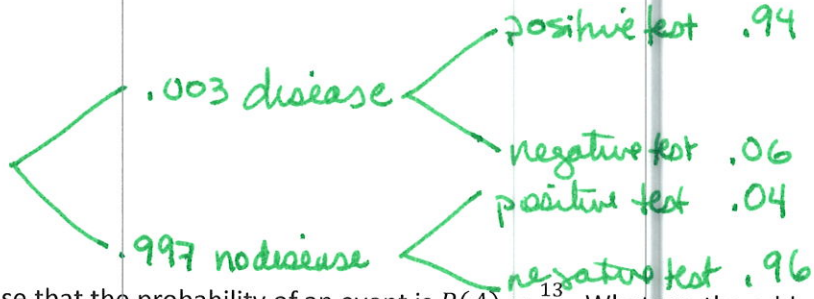
$62 + 48 + 10 + 16 = 136$

4. Use the following table to find the probability of getting the sum of 9 on rolling two 6-sided dice.

$\frac{4}{36} = \frac{1}{9}$

Sums	1	2	3	4	5	6
1	2	3	4	5	6	7
2	3	4	5	6	7	8
3	4	5	6	7	8	9
4	5	6	7	8	9	10
5	6	7	8	9	10	11
6	7	8	9	10	11	12

5. A certain disease has an incidence rate of 0.3%. If the false negative rate is 6% and the false positive rate is 4%, compute the probability that a person who tests positive actually has the disease. [Hint: use a tree diagram.]



$$\frac{.003(.94)}{.003(.94)+(.997)(.04)} = .066$$

6.6%

6. Suppose that the probability of an event is $P(A) = \frac{13}{49}$. What are the odds for the event?

49 - 13 = 36

13 : 36