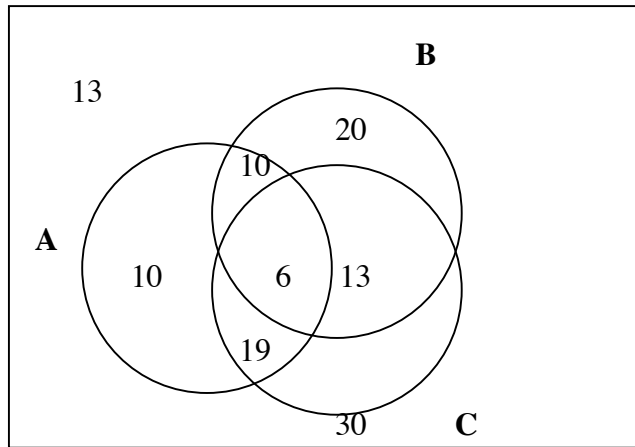


Show your work to receive full credit. Each problem is worth 6 points unless otherwise stated.

1. Give a short explanation of the following.
 - a. The probability that it I will pass this test is $9/10$.
 - b. The betting or house odds for an event is $99 : 1$.

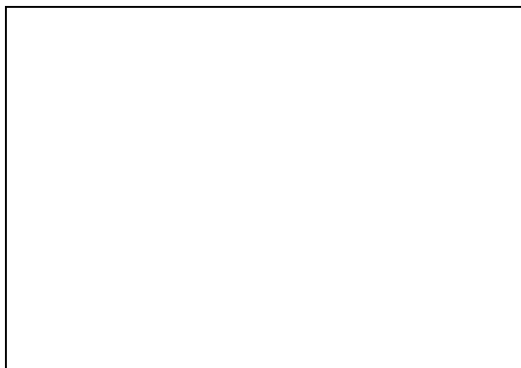
2. Use the Venn Diagram below to determine the number in each set. (3 pts ea)



- a) $n(A \cup B) =$ _____
- b) $n(A \cap B) =$ _____
- c) $n(A \cap B \cap \bar{C}) =$ _____
- d) $n(A \cup \bar{B} \cup C) =$ _____

3. Make a Venn diagram showing the following sets, U = the cards in a standard deck, A = the hearts, B = Clubs, C = Kings and Queens. Place the Roman Numerals I, II, III, IV, . . . in each region of the Venn Diagram and describe the elements for each Roman Numeral. (8 pts)

U = deck of cards



4. Paul is ordering a dinner from a menu that has six different main dishes, three different soups, four different salads, and five different appetizers. If he orders one of each, how many different meals can he be served?
5.
 - a) Twelve horses are in a race. In how many different ways can the horses place first, second, third, and fourth place.
 - b) There are 15 people on a team. In how many ways can three of them be chosen to sing the national anthem?
6. Two dice are tossed. What is the probability that the sum of the dice is eight?
7. Determine the probability of the following when a standard deck of 52 playing cards is used.
 - a. You draw a card from the deck and the card is a King.
 - b. You draw a card from the deck and the card is a club.
 - c. You deal two cards and you get a *black jack*, an Ace and a ten-point card (King, Queen, Jack, or Ten).
 - d. You deal out five cards and get four Kings.
 - e. You deal out five cards and get four any four-of-a-kind.
8. In the TV show “Deal or No Deal” a contestant has one of the five cases left containing the amounts, \$100, \$5000, \$200,000, \$500,000, and \$1,000,000. The “man upstairs” offers her \$320,000 to give up her case. Use expected values to determine if she should accept that offer or not. (8 pts)
7. From our study of probability in this chapter, what can you say about gambling at a casino? Explain.