Analysis H 2021-2022 – Hahn / Tantod
Unit 4: Probability Quiz 2
NO CALCULATORS – each question is worth 2 pts   **32 pts**
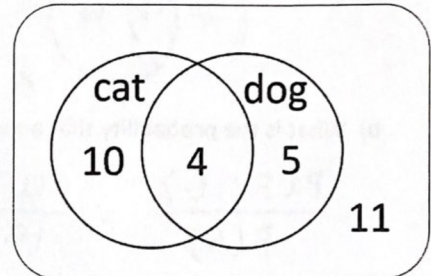
Feeling Lucky: _____   _____
Period: _____

For Questions 1 and 2: The Venn Diagram on the right shows the result of a survey, "do you own a cat or a dog?"
Let C = cat and D = dog.

1. Which of the following represents 11/30 of the people surveyed?
(IMPORTANT: Circle **ALL** that apply)

   a) $P(C \cup D)$ b) $P(C' \cap D')$ c) $P(C' \cap D')$

   d) $P(C \cap D)'$ e) $P(C \cup D)'$

2. What is $P(D|C')$?

3. Two fair, 6-sided dice are rolled (each one numbered 1-6). Find...

   a) P(sum is 10) =

   b) P("sum is greater than 7" OR "sum is an odd number") =

   c) P("sum is greater than 7" | "sum is an odd number") =

   d) The 2 dice are rolled 10 times in a row and the sum of the dice is recorded each time. What is the probability that the sum was more than 10, exactly 4 times?

4. Krafty Callie has a strange deck of cards with 6 Aces, 6 Kings, 6 Queens, and 6 Jacks. Using this deck, suppose you draw a card, DON'T replace it, and then draw another card. Find...

   a) P(drawing an Ace on the 2nd card, given that your 1st card was an Ace) =

   b) P(drawing 2 Aces) =

   c) P(drawing 2 Aces, given that at least one of the cards is an Ace) =

5. In a certain Analysis H class of 30 students, 18 of them have Flair, and 15 of them have Gumption. If 8 of them have neither Flair nor Gumption (don't worry, they have other great qualities)...

    a) Draw a Venn Diagram for this premise.

    b) What is the probability that a randomly selected student will have Flair, given that they have Gumption?

    c) Are the events "have Flair" and "have Gumption" mutually exclusive? Give a short (one sentence) explanation to justify your answer.

6. In a normal 52-card deck there are 12 face cards and 40 non-face cards. Felix draws a random card from the deck.

  - If the card is a face card, Felix rolls a 6-sided die and records the number (1-6)

  - If the card is a non-face card, Felix rolls a 10-sided die and records the number (1-10)

    a) P(choosing a face card and then rolling an odd number) =

    b) P(he records an 8 | he chose a non-face card) =

    c) P(he chose a non-face card | he records an 8) =

    d) P(he chose a face card | he records a 2) =