Probability Worksheet #1
September 21, 2018
2 Points

Circle one name.

Name: _____ **Name:** _____ **Name:** _____

Note: If A and B are two subsets of a set X, then:

- $\overline{A}$ is the set of members of X that are *not* in A (the *complement* of A).
- $A \cup B$ is the set of members of X that are in A *or* in B (*or both*) (the *union* of A and B).
- $A \cap B$ is the set of members of X that are in A *and* also in B (the *intersection* of A and B).

1. A survey of automobiles parked on a university campus lot classified the brands by country of origin and by the type of parking permit (student or faculty/staff).

	American car	European car	Asian car
student	25	10	15
faculty/staff	9	4	12

   (a) How many cars were in the lot?

   (b) Suppose we choose a car at random. Let S be the event that the car belongs to a student, let A be the event that the car is an American car. Find the following probabilities (leave your answer as fractions; no need to simplify):

      i. $P(S)$
      ii. $P(A)$
      iii. $P(\overline{S})$
      iv. $P(\overline{A})$
      v. $P(A \cap S)$
      vi. $P(A \cup S)$

2. A special deck of cards has five suits (red, yellow, green, black, purple), each with ranks 1 through 9.

   (a) How many cards are in this deck?

   (b) Suppose we draw a card at random. Let R be the event that the card is red. Let E be the event that the card we draw has rank 8. Find the following probabilities (leave your answer as fractions; no need to simplify). Also, express these using the appropriate probability notation.

      i. The probability the card is red:

      ii. The probability the card is not an eight:

      iii. The probability the card is a red eight:

      iv. The probability that the card is either red or an 8 (or both):