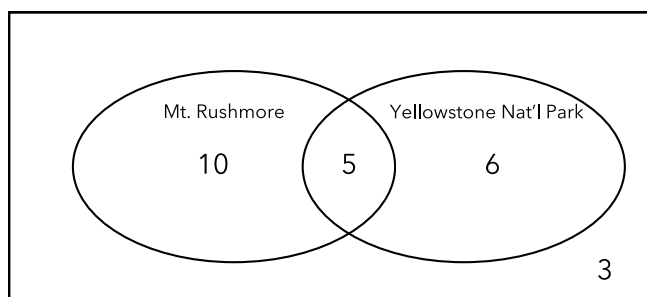


1.
 - a. The probability that a randomly selected student in Brett's first hour has a sibling is $\frac{44}{27} \approx 0.889$.
 - b. The probability that a randomly selected student in Brett's first hour has no pets is $\frac{12}{27} \approx 0.444$.
 - c. The probability that a randomly selected student in Brett's first hour has a sibling or a pet is $\frac{26}{27} \approx 0.963$.
 - d. No, 13 of the 27 students have both a sibling and a pet. Since both events can occur at the same time, they are not mutually exclusive.
2.
 - a. Yes, these events are mutually exclusive because they are complements and therefore cannot occur at the same time.
 - b. No, these events are not mutually exclusive because someone could have a bachelor's degree and a doctorate degree at the same time.
 - c. No, these events are not mutually exclusive because someone who has a bachelor's degree would have attended college so both events can happen at the same time.
 - d. Yes, these events are mutually exclusive because a student can only be enrolled in one 9 AM class, so these events cannot occur at the same time.

3. a.



- b. $\frac{5}{24} = 0.208$
- c. $\frac{11}{24} = 0.458$
- d. $\frac{21}{24} = 0.875$
- e. $\frac{6}{24} = 0.25$

4. 2

5.
 - a. $P(6-9 \text{ years and AP math class}) = P(6-9 \text{ years} \cap \text{AP math class}) = \frac{5}{66} \approx 0.076$
 - b. $P(\text{AP math class}) = \frac{34}{66} \approx 0.515$
 - c. $P(0-2 \text{ years}^C) = 1 - \frac{16}{66} = \frac{50}{66} \approx 0.758$
 - d. $P(0-2 \text{ years or Non-AP math class}) = P(0-2 \text{ years} \cup \text{Non-AP})$

6. D

7. C