1. If one can borrow a car every Monday, Tuesday, Wednesday, and every Tuesday, Thursday, and Friday, then how many days can one borrow the car per week?

- 2. Which of the sets are equal?
 - $\{1, 2, 3\} \stackrel{?}{=} \{1, 2, 3\}$
 - $\{1, 2, 3\} \stackrel{?}{=} \{1, 2\}$
 - $\{1,2,3\} \stackrel{?}{=} \{3,1,2\}$
 - $\{1, 2, 3\} \stackrel{?}{=} \{1, 2, 2, 3, 3, 3\}$
 - $\{1, 2, 3\} \stackrel{?}{=} \{ \text{ positive integers whose square has one digit } \}$
 - $\{1, 2, 3\} \stackrel{?}{=} \{ \text{ odd numbers less than } 4 \}$
- 3. Calculate the following unions and intersections:
 - $\{1, 2, 3\} \cup \{3, 4, 5\} =$
 - $\{1, 2, 3\} \cap \{3, 4, 5\} =$
 - $\{1, 2, 3\} \cup \{1\} =$
 - $\{1, 2, 3\} \cap \{1\} =$
- 4. Calculate the following differences:
 - $\{1, 2, 3\} \{1\}$
 - $\{1, 2, 3\} \{2, 3\}$
 - $\{1, 2, 3\} \{3, 4, 5\}$
 - $\{1, 2, 3\} \{4, 5, 6\}$
 - $\{1, 2, 3\} \{1, 2, 3\}$

5. A standard 52-card deck of playing cards has the following cards: $A \heartsuit 2 \heartsuit 3 \heartsuit 4 \heartsuit 5 \heartsuit 6 \heartsuit 7 \heartsuit 8 \heartsuit 9 \heartsuit 10 \heartsuit J \heartsuit Q \heartsuit K \heartsuit$ $A \diamondsuit 2 \diamondsuit 3 \diamondsuit 4 \diamondsuit 5 \diamondsuit 6 \diamondsuit 7 \And 8 \diamondsuit 9 \diamondsuit 10 \And J \diamondsuit Q \diamondsuit K \diamondsuit$ $A \diamondsuit 2 \bigstar 3 \And 4 \And 5 \diamondsuit 6 \And 7 \And 8 \And 9 \And 10 \And J \And Q \And K \diamondsuit$ $A \clubsuit 2 \bigstar 3 \clubsuit 4 \clubsuit 5 \clubsuit 6 \And 7 \And 8 \And 9 \And 10 \And J \And Q \And K \And$ $A \clubsuit 2 \bigstar 3 \bigstar 4 \clubsuit 5 \bigstar 6 \And 7 \And 8 \And 9 \And 10 \And J \And Q \And K \clubsuit$

If 5 people are playing, and each has been dealt 10 cards, then:

(a) Why must one of the suits $(\heartsuit, \diamondsuit, \clubsuit, \spadesuit)$ be completely dealt out?

(b) Must at least two people have at least one clubs \clubsuit ?

(c) Must at least one person has at least two clubs \clubsuit ?

(d) Must every player have at least 3 of the same suit?

(e) Must some pair of neighbors have at least 6 of the same suit combined (it counts, even if one player has 6 all by themselves)