

MAT 142 Test #2 Review

I. Sets

1. $A = \{a, b, c, d, g, h, k\}$; $B = \{b, d, g, k\}$; $U = \{a, b, c, d, e, f, g, h, i, j, k\}$
 - a) What is $A \cup B$
 - b) What is $n(A \cup B)$
 - c) What is $A' \cap B$
 - d) What is $(A \cup B)'$
2. At the beach people were asked about their activities during the day.

<input type="radio"/> 18 people had picnics	<input type="radio"/> 12 did all 3
<input type="radio"/> 30 people went swimming	<input type="radio"/> 15 went swimming or had a picnic
<input type="radio"/> 25 people sunbathed	<input type="radio"/> 18 swam or sunbathed
<input type="radio"/> 5 people did none of those	<input type="radio"/> 14 had a picnic or sunbathed

 - a) How many people only had a picnic?
 - b) How many sunbathed and swam but didn't have a picnic?
3. Suppose $n(A)=24$, $n(B)=18$ and $n(A \cap B)=12$. What is $n(A \cup B)'$?

II. Counting Techniques

1. There are 10 people in a room. If they leave one at a time, in how many orders could this be done?
2. At the pizza store, there are 3 types of crusts to choose from, 4 sizes to choose from, 2 sauces to choose from, and 14 toppings – you're going to pick 4 of them. How many different pizzas could be made like this?
3. You and four roommates live together in an apartment. Unfortunately, there are only 2 assigned parking spots and all 5 of you have cars. How many different combinations of cars could end up in those two spots?
4. In a class of 20 students, everyone has to give a presentation, but only 6 will be able to go during today's class. If we pay attention to what order the presentations are being given in, in how many different ways can the 6 presenters for the day be determined?

III. Probability & Odds

1. You will select one card at random from a deck of 52.
 - a) What is the probability that it is red and a 4?
 - b) What is the probability that it is red or a 4?
 - c) What is the probability that it is not red or not a 4?
2. 120 students at ASU are asked whether or not they're taking a math class and a humanities class this semester. 40 are taking a math class. 50 are taking a humanities course. 40 aren't taking either of those two types of classes. If this is a well-conducted survey and we select an ASU student at random...
 - a) What is the probability that the student is taking math but not humanities?
 - b) What is the probability that the student is taking both?
 - c) What are the odds that the student is taking humanities or math?
 - d) What are the odds that the student is not taking math or is taking humanities?