

WebAssign

Test #2 (Units 5, 6, 7, & 8) (Quiz)

Kendra Knuckles

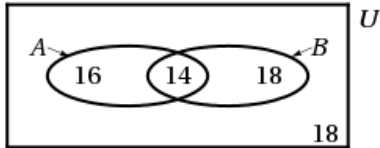
MAT230, section MAT230.32 MOD5 2016, Summer 1 2016

Instructor: Kathleen Ferguson

Current Score : - / 71 Due : Sunday, June 26 2016 11:59 PM EDT

1. -/1 pointsBerrFinMath1 5.1.003.

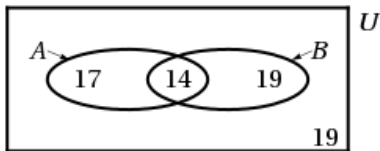
Find the number using the following Venn diagram.

 $n(U)$ 

Show My Work (Optional) ?

2. -/1 pointsBerrFinMath1 5.1.005.

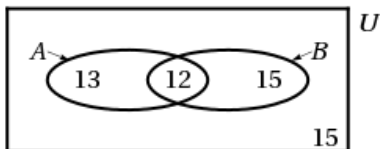
Find the number using the following Venn diagram.

 $n(A \cup B)$ 

Show My Work (Optional) ?

3. -/1 pointsBerrFinMath1 5.1.006.

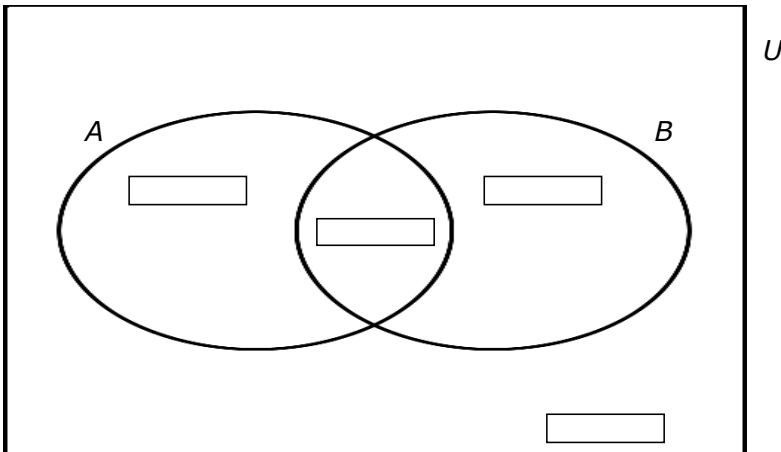
Find the number using the following Venn diagram.

 $n(A^c)$ 

Show My Work (Optional) ?

4. -/4 pointsBerrFinMath1 5.1.011.

Given that $n(A) = 20$, $n(B) = 12$, $n(A \cap B) = 6$, and $n(U) = 38$, fill in the four regions in the Venn diagram.



Show My Work (Optional) ?

5. -/1 pointsBerrFinMath1 5.1.014.

How many **five**-symbol computer passwords can be formed using the letters A to J and the digits **2** to **7**?

passwords

Show My Work (Optional) ?

6. -/1 pointsBerrFinMath1 5.2.002.

Calculate the quotient of factorials.

$\frac{7!}{5!}$

Show My Work (Optional) ?

7. -/1 pointsBerrFinMath1 5.2.003.

Determine the number of permutations.

$6P_3$

Show My Work (Optional) ?

8. -/1 pointsBerrFinMath1 5.2.005.

Find the number of combinations.

$8C_4$

Show My Work (Optional) ?

9. -/2 pointsBerrFinMath1 5.2.008.

A computer password is to consist of **four** alphanumeric characters with no repeats. (An alphanumeric character is a letter from A to Z or a digit from 0 to 9.) How many such passwords are there?

passwords

How many are there if the letter O and the digit 0 are excluded to avoid confusion?

passwords

Show My Work (Optional) ?

10. -/1 pointsBerrFinMath1 5.2.010.

A junior high girls' basketball team is to consist of 5 players. How many different teams can the manager select from a roster of **8** girls?

teams

Show My Work (Optional) ?

11. -/2 pointsBerrFinMath1 5.3.004.

If a committee of **3** is to be chosen at random from a class of **14** students, what is the probability of any particular committee being selected? (Enter your answer as a fraction.)

What if the committee is to consist of a president, a vice president, and a treasurer? (Enter your answer as a fraction.)

Show My Work (Optional) ?

12. -/2 pointsBerrFinMath1 5.3.007.

A box contains **4** red and **9** green marbles. You reach in and remove 3 marbles all at once.

(a) Find the probability that these 3 marbles are all red. (Enter your answer as a fraction.)

(b) Find the probability that these 3 marbles are all of the same color. (Enter your answer as a fraction.)

Show My Work (Optional) ?

13. -/1 pointsBerrFinMath1 5.3.009.

The U.S. Senate consists of 100 members, 2 from each state. A committee of **9** senators is formed. What is the probability that it contains at least one senator from your state? (Round your answer to two decimal places.)

Show My Work (Optional) ?

14. -/1 pointsBerrFinMath1 5.3.010.

You carry **nine** keys in your pocket, **three** of which are for the **three** locks on your front door. You lose one key. What is the probability that you can get into your house through the front door? (Enter your answer as a fraction.)

Show My Work (Optional) ?

15.-/1 pointsBerrFinMath1 5.4.006.

Suppose that 60% of drivers are "careful" and 40% are "reckless." Suppose further that a careful driver has a 0.3 probability of being in an accident in a given year, while for a reckless driver the probability is 0.5. What is the probability that a randomly selected driver will have an accident within a year? (Enter your answer to two decimal places.)

Show My Work (Optional) ?

16.-/2 pointsBerrFinMath1 5.4.001.

Use the given values to find the following. (Enter your answers as fractions.)

$$P(A) = 0.6, P(B) = 0.4, P(A \cap B) = 0.1$$

(a) $P(A \text{ given } B)$

(b) $P(B \text{ given } A)$

Show My Work (Optional) ?

17.-/1 pointsBerrFinMath1 5.4.003.

A box contains 5 white, 4 red, and 5 black marbles. One marble is chosen at random, and it is not black. Find the probability that it is white. (Enter your answer as a fraction.)

Show My Work (Optional) ?

18.-/1 pointsBerrFinMath1 5.4.005.

You will take either a basket-weaving course or a philosophy course, depending on what your advisor decides. You estimate that the probability of getting an A in basket weaving is 0.85, while in philosophy it is 0.60. However, the chances of your advisor choosing the basket-weaving course is only 30%, while there is a 70% chance that he will put you in the philosophy course. What is the probability that you end up with an A? (Enter your answer to three decimal places.)

Show My Work (Optional) ?

19.-/1 pointsBerrFinMath1 5.4.008.

Two students are registered for the same class and attend independently of each other, student A 70% of the time and student B 60% of the time. The teacher remembers that on a given day at least one of them is in class. What is the probability that student A was in class that day? (Round your answer to three decimal places.)

Show My Work (Optional) ?

20. -/6 points BerrFinMath1 8.1.001.

For the situation, identify the two players and their possible choices, and construct a payoff matrix for their conflict.

In an attempt to gain more viewers, Channel 86 and Channel 7 are each trying to decide whether to schedule a quiz show or a reality series in their 8:00 prime time slot. Market research indicates that if Channel 86 chooses a quiz show, it will gain 3% of the market if Channel 7 runs a quiz show and lose 5% if Channel 7 runs a reality series, while if Channel 86 chooses a reality series, it will gain 7% if Channel 7 runs a quiz show and lose 7% if Channel 7 runs a reality series. [Hint: Use Q and R for quiz show and reality series.]


		Channel 7	
		Q	R
Channel 86	Q	(<input type="text"/> % <input type="text"/> %)	(<input type="text"/> % <input type="text"/> %)
	R	(<input type="text"/> % <input type="text"/> %)	(<input type="text"/> % <input type="text"/> %)

What does Q represent?

- Q represents a quiz show.
- Q represents a reality show.

What does R represent?

- R represents a quiz show.
- R represents a reality show.

Show My Work (Optional) 


21. -/5 points BerrFinMath1 8.1.003.

For the game, identify the saddle point and determine the corresponding optimal strategy for each player.

$$\begin{pmatrix} 3 & 9 \\ 2 & 7 \end{pmatrix}$$

The saddle point is the in row and column .

The optimal strategy is for R to always choose row and for C to always choose column .

Show My Work (Optional) 


22. -/5 points BerrFinMath1 8.1.004.

For the game, identify the saddle point and determine the corresponding optimal strategy for each player.

$$\begin{pmatrix} 4 & 1 & 2 \\ 5 & -4 & -5 \end{pmatrix}$$

The saddle point is the in row and column .

The optimal strategy is for R to always choose row and for C to always choose column .

Show My Work (Optional) 

23. -/10 points BerrFinMath1 8.1.007.

Determine the optimal strategy for the situation by representing it as a game and finding the saddle point. State your final answer in the terms of the original question.

In an ongoing price war between Burger Haven (locally owned) and MacArches (a chain), both restaurant managers plan to change the price of a hamburger by 10¢. If they both raise their prices, there will be no change in their market shares, but if they both lower their prices, the chain's national advertising will ensure that MacArches gains 6% of the market. Again because of advertising, if Burger Haven lowers their price and MacArches raises their price, Burger Haven will gain only 5% of the market, but if Burger Haven raises their price and MacArches lowers their price, MacArches will gain 8% of the market. Use this information to decide what the managers should do.

		MacArches	
		L	R
{	L		
	R		

What does L represent?

- L represents lowering the price by 10¢.
- L represents raising the price by 10¢.

What does R represent?

- R represents lowering the price by 10¢.
- R represents raising the price by 10¢.

The saddle point is the in row and column .

What should the managers do?

- MacArches should lower its prices, while Burger Haven raises its prices.
- Burger Haven should lower its prices, while MacArches raises its prices.
- Both restaurants should lower the price.
- Both restaurants should raise the price.

Show My Work (Optional)

24. -/1 points BerrFinMath1 8.2.001.

For the game and mixed strategies, find the expected value.

$$\text{Let } G = \begin{pmatrix} 2 & -5 \\ 4 & 3 \end{pmatrix}, \quad r = \begin{pmatrix} \frac{1}{2} & \frac{1}{2} \end{pmatrix} \quad \text{and} \quad c = \begin{pmatrix} \frac{1}{2} \\ \frac{1}{2} \end{pmatrix}$$

Show My Work (Optional)

25.--/6 pointsBerrFinMath1 8.2.005.

For the 2×2 game, find the optimal strategy for each player. Be sure to check for saddle points before using the formulas.

$$\begin{pmatrix} 2 & -5 \\ 1 & 2 \end{pmatrix}$$

For row player R :

$$r_1 = \boxed{}$$

$$r_2 = \boxed{}$$

For column player C :

$$c_1 = \boxed{}$$

$$c_2 = \boxed{}$$

Find the value v of the game for row player R .

$$v = \boxed{}$$

Who is the game favorable to?

- The game is favorable to the row player.
- The game is favorable to the column player.
- This is a fair game.

Show My Work (Optional) ?

26.--/12 pointsBerrFinMath1 8.2.009.

Represent the situation as a game and find the optimal strategy for each player. State your final answer in the terms of the original question.

A farmer grows apples on her 700-acre farm and must cope with occasional infestations of worms. If she refrains from using pesticides, she can get a premium for "organically grown" produce and her profits per acre increase by \$900 if there is no infestation, but they decrease by \$300 if there is. If she does use pesticides and there is an infestation, her crop is saved and the resulting apple shortage (since other farms are decimated) raises her profits by \$600 per acre. Otherwise, her profits remain at their usual levels.

	No worms	Worms
No pesticides	<input type="text"/>	<input type="text"/>
Pesticides	<input type="text"/>	<input type="text"/>

$$r_1 = \boxed{}$$

$$r_2 = \boxed{}$$

$$c_1 = \boxed{}$$

$$c_2 = \boxed{}$$

$$v = \boxed{}$$

How should she divide her farm into a "pesticide-free" zone and a "pesticide-use" zone? (Round your answers to two decimal places.)

The farmer should set aside acres for pesticide-free apples and use pesticide on the other acres.

What will be her expected increase in profits per acre with this strategy?

This strategy will increase her expected profits by \$ per acre.

Show My Work (Optional) ?