Matthew Macauley **clemson-math4190**
Assignment online_HW_1_set_theory due 05/16/2019 at 11:59pm EDT

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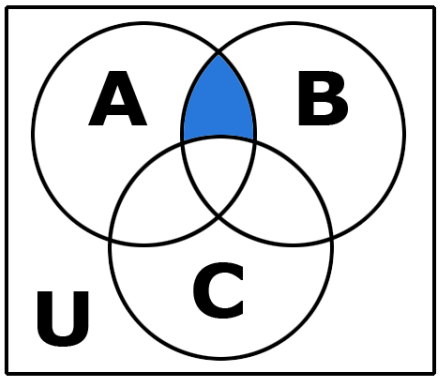
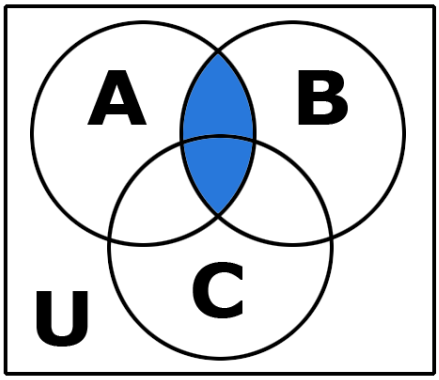
1. **(2 points)** Library/SDSU/Discrete/Sets/VennA1/VennA1.pg
Which of the following Venn diagrams corresponds to $A \cap B$?

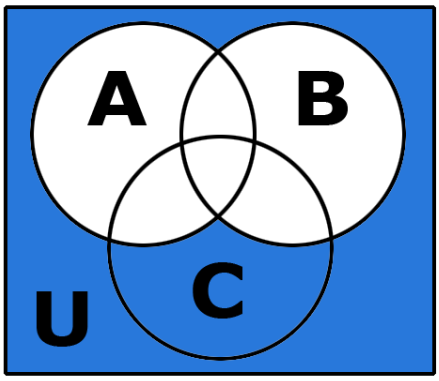
- A.



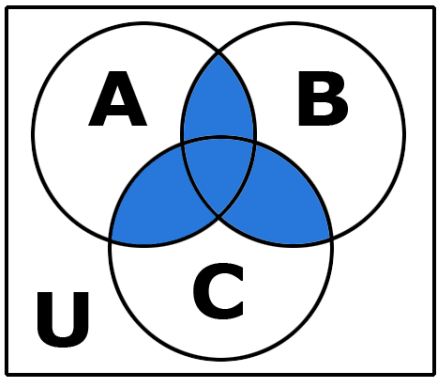
- B.



- C.



- D.



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2. **(2 points)** Library/CollegeOfIdaho/setAlgebra_04_02_CompoundIneq/42IntAlg_01_CompoundIneq.pg
Let $A = \{3,5,6,7,10\}$, $B = \{5,6,7,9\}$.
Find the following sets in list form. Separate elements with commas. If there are no elements in the set, enter "NONE".

a) $A \cap B =$ _____

b) $A \cup B =$ _____

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3. **(4 points)** Library/ASU-topics/setSets/ur_st_1_2.pg

Let $A = \{0,2,3,6,8\}$, $B = \{2,3,6,7\}$, $C = \{1,3,4,5,7,8\}$.
List the elements of the following sets. If there is more than one element write them separated by commas.

$A \cap B = \{$ _____ $\}$

$A \cup B = \{$ _____ $\}$

$(B \cup C) \cap A = \{$ _____ $\}$

$B \cup (C \cap A) = \{$ _____ $\}$

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4. **(3 points)** Library/NAU/setSet/Sets_3.pg

Let U = Universal set $= \{ a,b,c,d,e,1,2,3 \}$, $A = \{2,d,e,b,1\}$, and $B = \{3,d,a\}$.
List the elements of the following sets. If there is more than one element write them separated by commas.

$\overline{A} = \{$ _____ $\}$

$\overline{A \cup B} = \{$ _____ $\}$

$\overline{A} \cap \overline{B} = \{$ _____ $\}$

5. **(2 points)** Library/NAU/setSet/Sets_4.pg

Let
U = Universal Set= { All college students }
M = { All male students }
S = { All students who smoke }
F = { All Freshmen }

Give a description of "all male students who smoke" in terms of a set

- A. $M \cap S$
- B. $M \cup S$
- C. $\overline{M} \cap \overline{S}$
- D. $\overline{M} \cap S$

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6. **(2 points)** Library/SDSU/Discrete/Sets/subsetB3.pg

Let $R = \{\text{numbers divisible by } 2\}$

Determine which of the following sets are subsets of R

- A. $\{integers\}$
- B. $\{44, 221, 90\}$
- C. $\{0\}$
- D. $\{-82, 104, 16\}$
- E. $\{1\}$

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7. **(4 points)** Library/MontanaState/Sets/1.2B39Sets1.pg

True or False?
$\emptyset \in \{-1, 5, 6\}$

- A. True
- B. False

True or False?
$\emptyset \in \emptyset$

- A. True
- B. False

True or False?
$\emptyset \subset \{-1, 5, 6\}$

- A. True
- B. False

True or False?
$\emptyset \subset \emptyset$

- A. True
- B. False

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8. **(3 points)** Library/NAU/setFoundations/MAT320_0301.pg

Enter T or F depending on whether the statement is true or false. (You must enter T or F – True and False will not work.)

___1. $\emptyset \not\subseteq \emptyset$
___2. $\emptyset \in \{\emptyset\}$
___3. $\{\emptyset\} \in \{\emptyset\}$

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9. **(4 points)** Library/Rochester/setSetTheory1/ur_st_1_6.pg

What is the cardinality of each of the following sets?

(a) $\emptyset$

_____

(b) $\{\emptyset\}$

_____

(c) $\{\emptyset, \{\emptyset\}\}$

_____

(d) $\{\emptyset, \{\emptyset\}, \{\emptyset, \{\emptyset\}\}\}$

_____

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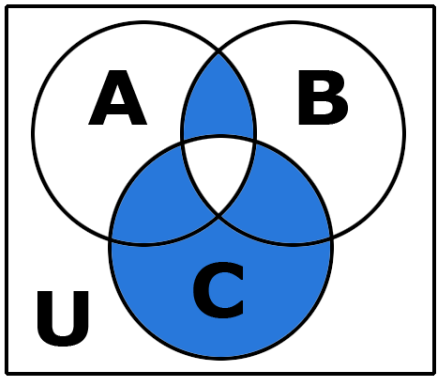
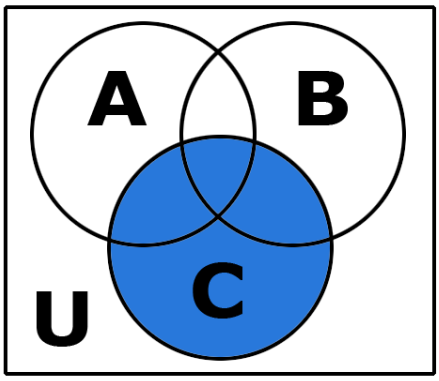
10. **(2 points)** Library/SDSU/Discrete/Sets/VennB9/VennB9.pg

Which of the following Venn diagrams corresponds to $C \cap U$?

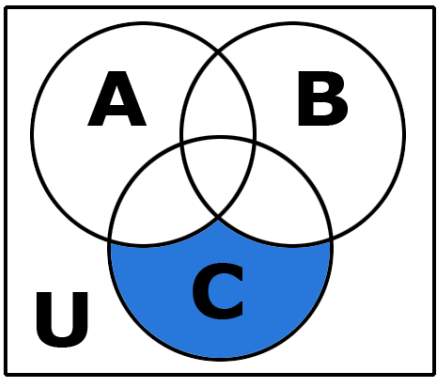
- A.



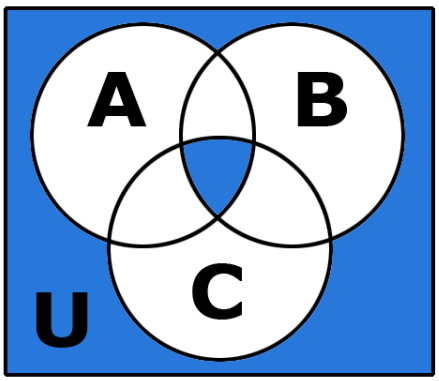
- B.



- C.



- D.



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11. **(2 points)** `Library/SDSU/Discrete/Sets/complementA2.pg`

Suppose the set $A = U$.

How many elements are in A^c? _____

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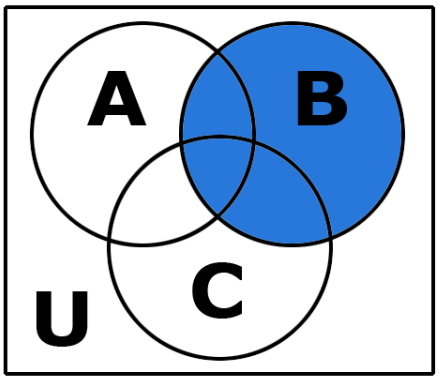
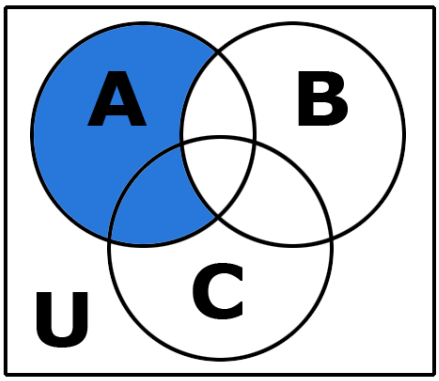
12. **(2 points)** `Library/SDSU/Discrete/Sets/VennA2/VennA2.pg`
Which of the following Venn diagrams corresponds to $A - B$?

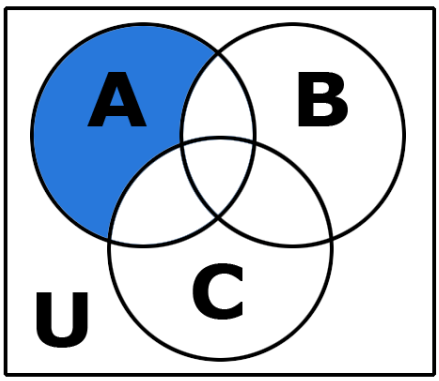
- A.



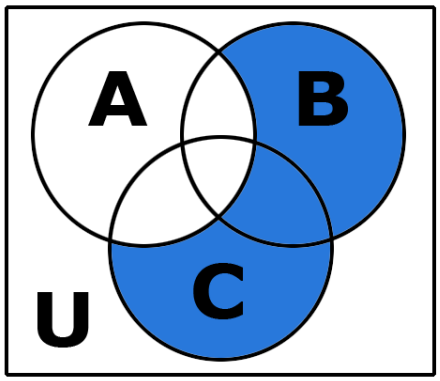
- B.



- C.



- D.



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13. **(4 points)** `Library/SDSU/Discrete/Sets/cartesianprodB5.pg`
Let $A = \{5, 8\}$,
$B = \{p, q\}$,
$C = \{r, v\}$

How many elements are in $A \times B$? ___

How many elements are in $B \times C$? ___

How many elements are in $A \times B \times C$? ___

Determine $A \times B \times C$
[Note: Enter your answer as a comma-separated list. Pairs should be denoted with parentheses.]

{_____}

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14. **(5 points)** Library/ASU-topics/setDiscrete/katie1.6_1.pg

Let A be the following set. A = $\{\emptyset, 1, \{1,2\}\}$. Mark each of the following true T or false F.

___1. $(1,2) \in A \times A$
___2. $\{\emptyset,1\} \in A \times A$
___3. $\{\emptyset\} \in P(A)$
___4. $\{1,2\} \subseteq A$
___5. $\{\{1,2\}\} \subseteq A$

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16. **(6 points)** Library/NAU/setFoundations/MAT320_0402.pg

Determine whether the given statement is true or false. Write T for true and F for false.

___1. $\mathcal{P}(A) \setminus \mathcal{P}(B) \subseteq \mathcal{P}(A \setminus B)$
___2. $\mathcal{P}(A) \cap \mathcal{P}(B) \subseteq \mathcal{P}(A \cap B)$
___3. $\mathcal{P}(A \cap B) \subseteq \mathcal{P}(A) \cap \mathcal{P}(B)$

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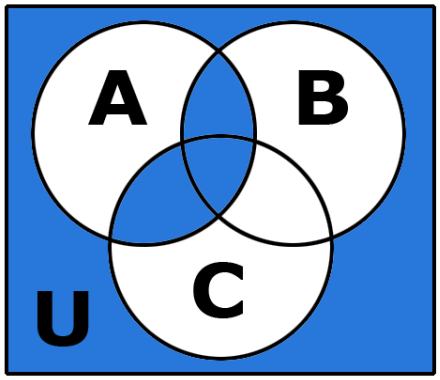
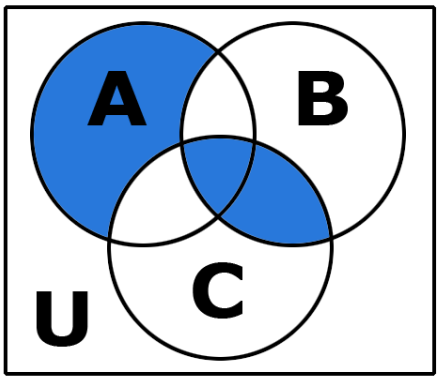
17. **(2 points)** Library/SDSU/Discrete/Sets/VennB12/VennB12.pg
Which of the following Venn diagrams corresponds to $(A \cap B^c) - C$?

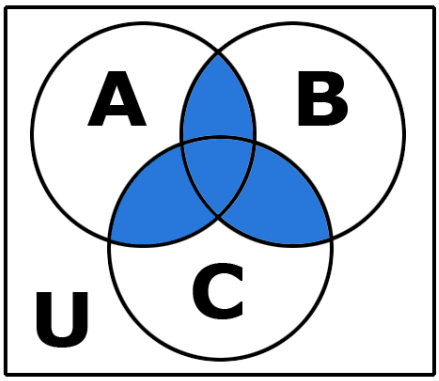
- A.



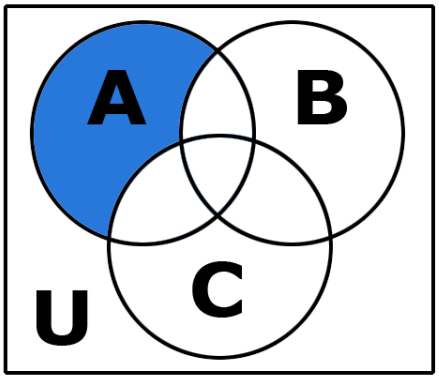
- B.



- C.



- D.



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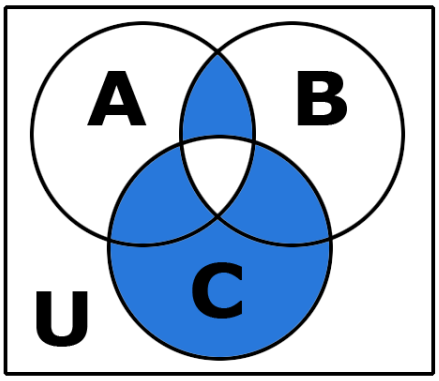
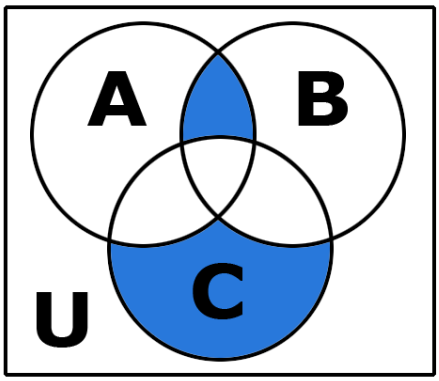
18. **(2 points)** Library/SDSU/Discrete/Sets/VennB3/VennB3.pg
Which of the following Venn diagrams corresponds to $(A \cap B) - C$?

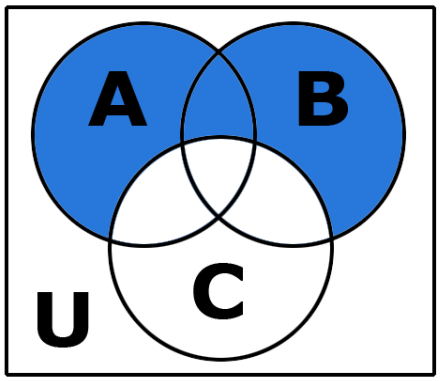
- A.



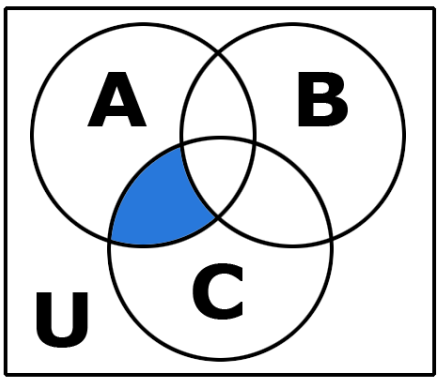
- B.



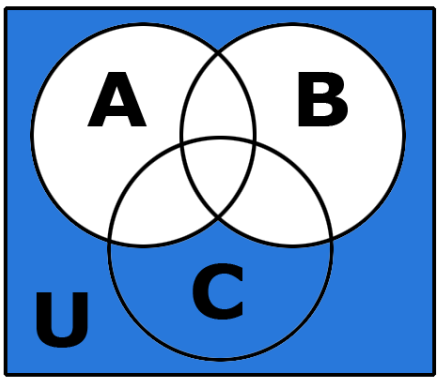
- A.



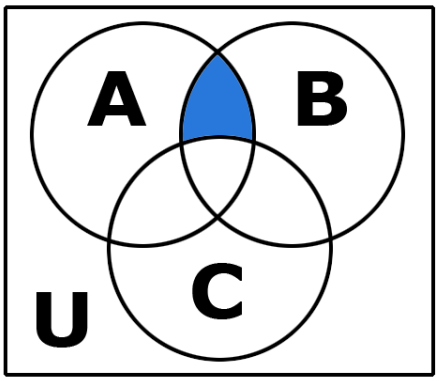
- C.



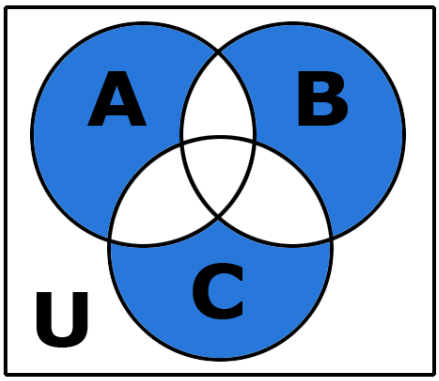
- B.



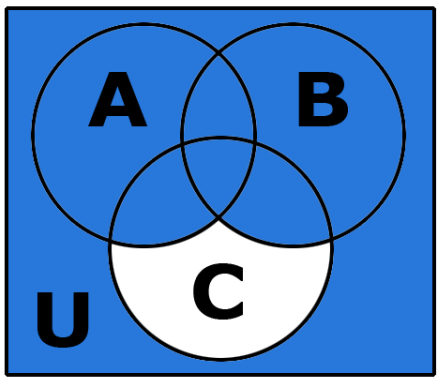
- D.



- C.



- D.



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19. **(2 points)** `Library/SDSU/Discrete/Sets/VennB10/VennB10.pg`
Which of the following Venn diagrams corresponds to $A \cup B \cup C^c$?