

Place your name on the back of this sheet of paper and nowhere else. Staple your answers on the front of this sheet of paper. Failure to follow these directions will cost you 10 points. If you use double-sided printing or write on the back of scrap paper, I will give you one additional point.

1) (10 points) What part of my webpage <http://www.WCsaplarJr.info> do you think is most helpful? Explain your logic. Is anything missing which would be helpful? What is the URL for the first test from the last time this course was taught?

2) (20 points) Draw a Venn Diagram where the universal set is voters in the last presidential election. Draw set D which represents registered Democrats. Draw set T to represent voters who voted for Trump. Given your diagram, what percentage of the voters are in $D \cap T$, and $D \cup T$? Explain your logic and state what the interpretation of those sets is.

3) (5 points each) Suppose $A = \{x \in \mathcal{R}: 0 < x < 10\}$, $B = \{1, 3, 5, 7, 9, 11, 13\}$ and $C = \{2, 4, 6, 8\}$. Find the following sets. State what you did.

A) $A \cap B$

B) $B \cap C$

C) $B \cup C$

D) Is any of those sets a subset of one of the others? If yes, then which are they? State how you know.

4) (10 points) Suppose the universal set is $U = \{x \in \mathcal{Z}: 0 < x \leq 10\}$, $D = \{1, 3, 7, 8\}$, and $E = \{4, 6, 8\}$. What is $\bar{D} \cap E$. State how you found it.

5) (5 points each) For each of the following, determine the units, a.k.a. dimensions, of the variables. Explain how you reached that conclusion.

A) price of gasoline

B) total costs

C) marginal costs

D) marginal productivity of labor

6) (5 points each) Plot the following and state how you found them.

A) $(0, 10]$

B) $[11, \infty)$

C) The point $(3, -2, 3)$

7) (5 points) Find the Euclidean distance between $(4, 6, -2)$ and $(-1, 6, 10)$.