WORKSHEET 1

- (1) Get to know your group! Discuss the following questions. Write down some of your favorite responses.
 - (a) Why did you choose your current major? What do you see yourself doing after college?
 - (b) What are your favorite books, music, TV shows, movies, games, etc...?
 - (c) What do you think is most important about a college education?
 - (d) What is the most interesting place you've been?
 - (e) What has your experience with math been like so far, and how do you feel about it?

(2) (a) How many different triangles can you form using the following four dots as vertices?

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(b) How many different triangles can you form using the following nine dots as vertices?

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(c) How many different triangles can you form using the following nine dots as vertices?

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(d) How can you know that you've counted all the triangles (i.e., were you able to come up with an efficient method of counting)?

- (3) A linear function is a function that can be written in the form f(x) = mx + b, where m and b are constants. For two linear functions f and g, show that:
 - (a) the function f + g is linear

(b) the function $f \circ g$ is linear

(4) Consider a corner of a chessboard and the queen, located at "Q".



Using only legal moves, the queen from that spot can pass through all 9 squares in 5 moves, such as in the following case:



Is it possible for the queen from that spot to pass through all 9 squares with only 4 legal moves? If yes, how? If no, why?