

Name \_\_\_\_\_ Discrete II, Spring 2017, Quiz 1

1) Give 5 asymptotic bounds for the function below, one for each of  $O$ ,  $\Omega$ ,  $\Theta$ ,  $o$ , and  $\omega$ .

$$f(n) = n^2 \log^2(n) + 5n^3 + 7$$

2) Show that  $f(n) = n^3 + 3n$  is  $O(n^3)$ .

3) You and three friends are at a restaurant. You're going to order a total of 4 beverages and 4 meals. You each will order beverages separately from a list of 12 choices. Together you will order 4 different meals and share them all with each other, from a list of 21 choices. How many different dining options do you have?