

**CSci 1302 Assignment 10**  
**Due Monday, April 23rd in class**

**Problem 1 (10 points).** Prove each of the following, using the definitions of  $O$ ,  $\Omega$ , and  $\Theta$ :

1.  $3x^2 + 3x - 5$  is  $O(x^3)$
2.  $5x^2 + 5$  is  $\Omega(x)$
3.  $3x^2 - 7x + 100$  is  $O(x^2)$
4.  $\log_2 x + 3$  is  $\Theta(\log_2 x)$
5.  $55$  is  $O(1)$

**Problem 2 (4 points).** Exercises 11 and 13 p. 529.

**Problem 3 (4 points).** Exercise 17 p. 529.

**Problem 4 (2 points).** Exercises 35 and 36 p. 530.

**Problem 5 (6 points).** Exercises 3 and 5 p. 540.

**Problem 6 (9 points).** Exercises 10, 12, 16 p. 541.