

CS142 Assignment 10  
Problem 2

- a) If  $n \geq \frac{3}{5}$ ,  $n^2 \leq n^2 + 5n - 3$ . With this constraint, it's also true that  $4n^2 \geq n^2 + 5n - 3$ . Therefore,  $an^2 \leq n^2 + 5n - 3 \leq bn^2$  if  $n_0 \geq \frac{3}{5}$ ,  $a = 1$ , and  $b = 4$ .
- b) If  $n \geq 1$ ,  $n^2 \leq n^2 + n$ . With this constraint, it's also true that  $2n^2 \geq n^2 + n$ . Therefore,  $an^2 \leq n^2 + n \leq bn^2$  if  $n_0 \geq 1$ ,  $a = 1$ , and  $b = 2$ .
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