This quiz is worth 10 points.

1. (6 points) Let $\alpha = 3$, $u = (1, 2, 3)$ and $v = (2, 0, -1)$. Calculate each expression below. (Suppose $\mathbf{1}$ is a 3-vector of all 1's.

   (a) $u + \mathbf{1}$ (b) $\mathbf{1}^T u$ (c) $(\alpha u)^T v$.

2. (2 points) Suppose a course is graded based on five chapter tests and one final exam, each out of 100 points. The total course score in the class, s, is calculated as weighted average where the chapter tests are worth 60% of the grade and the final exam score is worth the remaining 40% of the grade. The record for each student is given by a 6-vector r where r_1, r_2, r_3, r_4, and r_5 are the chapter test scores and r_6 is the final exam score.

   Find a vector w such that the s in the form $s = w^T r$ and s is a number from 0 to 100.

3. (2 points) Let $x = (x_1, x_2, x_3, x_4, x_5)$ be a 5-vector.

   (a) Find the vector $d = x_{2:5} - x_{1:4}$. (Note that your answer will have x_i's in it.)

   (b) Suppose that x gives the price of a particular stock, in dollars per share, at the end of each day for the previous week (ie Mon - Fri). What does the vector d represent for this stock? (One or two sentences is sufficient.)