Homework Sets 23–25. Due WEDNESDAY Nov 7

Monday Oct 29	5.1	2ab, 3ac, 5, 7
Wednesday Oct 31	5.1	17, 18, 20, and **Supplemental Problem 10.**
Friday Nov 2	5.2	2, 3, 4, 8.

For 3a, let $T = \{\mathbf{v} \in \mathbb{R}^3 \mid \mathbf{x} \cdot \mathbf{v} = \mathbf{y} \cdot \mathbf{v} = \mathbf{0}\}$. Use the definition of null space to show $N(A) = T$, then show $T = S^{\perp}$.

For 8, give a precise proof. This generalizes problem 3a.

Supplemental Problems.

10. Five students took aptitude exams in English, mathematics and science. Their scores are shown in the table on the back of this page.

(a) Find the correlation coefficients r_{EM}, r_{ES} and r_{MS} between the three pairs of variables.

(b) Which ones are positively correlated? Which are negatively correlated?

Student	English (E)	Math (M)	Science (S)
S1	61	53	53
S2	63	73	78
S3	78	61	82
S4	65	84	96
S5	63	59	71
Mean	66	66	76