

Math 21b Additional Midterm Practice Questions
Petko's Section – October 30, 2005

Answer Sheet

True/False:

Questions #4, #5, #7, #12, #32, #33, #34 and #36 are false. All others are true.

Skills:

1) $\begin{bmatrix} -0.8 & 0.6 \\ 0.6 & 0.8 \end{bmatrix}$.

2) $\begin{bmatrix} 19 \\ 39 \\ 64 \end{bmatrix}$.

3) $\dim(\ker(A)) = \text{null}(A) = 1$.
 $\dim(\text{im}(A)) = \text{rank}(A) = 2$.

$$\ker(A) = \text{span} \left\{ \begin{bmatrix} 5 \\ 3 \\ -1 \end{bmatrix} \right\}.$$

It's impossible to determine a basis for $\text{im}(A)$ only knowing $\text{rref}(A)$.

Extra Question:

(a) $\begin{bmatrix} 1 & 1 \\ 0 & 2 \end{bmatrix}$.

(b) $\begin{bmatrix} 1 & 0 \\ 0 & 2 \end{bmatrix}$.

(c) This transformation is not linear because it does not fix the origin.

(d) $\begin{bmatrix} -1 & 0 \\ 0 & -1 \end{bmatrix}$. This is rotation by π .