

### Solution Sketch for Practice Test 3

2. Dimension  $n(n+1)/2$ . One basis is all symmetric 0–1 matrices that are zero everywhere except for either one 1 on the diagonal or two 1's off the diagonal.

3. a) No. (It is not self-adjoint.)

b) Yes.

$$\begin{pmatrix} \sqrt{2} & 0 \\ \frac{1}{1+\sqrt{2}} & 1 \end{pmatrix}$$

c) No.

d) Okay, this question is impossible. According to Maple, answer is  $(\sqrt{10} \pm \sqrt{2})/2$ .