

QUIZ November 20, 2013

Clicker Instructions: A = True; B = False;

C = I don't know; D = No truth value

correct = 1pt; don't know = 0pt; wrong = 0pt

1. The eigenvectors and eigenvalues of a matrix  $A$  describe the long-term behaviour of a discrete dynamical system,  $\mathbf{x}_{k+1} = A\mathbf{x}_k$  as  $k$  tends toward infinity.
2. Let  $A$  be a diagonal matrix with entries  $a_1, \dots, a_n$  along the diagonal. Let  $B$  be a diagonal matrix with entries  $b_1, \dots, b_n$  along the diagonal. Then  $AB$  is a diagonal matrix with entries  $a_1b_1, \dots, a_nb_n$  along the diagonal.
3. The function  $f(k) = a^k$  tends toward  $\infty$  if  $|a| > 1$ , tends toward 0 if  $|a| < 1$  and tends toward 1 if  $|a| = 1$ .