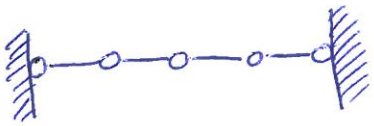
Homework 4.

Back to basics.

Our four favourite matrices K, T, B & C.

Question 1
Complete this table about "four special matrices" (section 1.1).

	boundary conditions	boundary rows	invertible?
K	 $u(0) = 0$ fixed; $u(1) = 0$ fixed	top row $[2 \quad -1 \quad 0 \cdots \quad 0]$; bottom row $[0 \cdots \quad -1 \quad 2]$	YES!
T			
B			
C			

Question 2

Complete this table. The answer is in first few minutes of OCW lecture 15.

$B = A^T A$ (5×5)

A (4×5) $= \begin{bmatrix} -1 & 1 & 0 & 0 & 0 \\ 0 & -1 & 1 & 0 & 0 \\ 0 & 0 & -1 & 1 & 0 \\ 0 & 0 & 0 & -1 & 1 \end{bmatrix}$

$T = A^T A$ (-x-)

$A =$ (-x-)

$K = A^T A$ (-x-)

$A =$ (-x-)

$C = A^T A$ (-x-)

$A =$ (-x-)