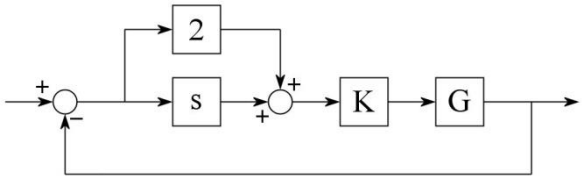
1. For $G(s) = \dfrac{1}{s^2 + 2s + 2}$, determine the value of *K* for the following feedback control system so that the steady state error for a unit-step input is 0.01



A. 198
B. 98
C. 99
D. 49

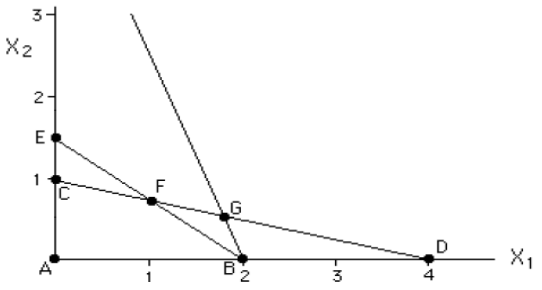
2. The probability of getting a head in tossing of a coin is

A. 0.5
B.1
C.1.5
D.-0.5

3. If $X_{ij}>0$ in the transportation problem, then dual variables U and V must satisfy

In reference to the following LP and associated graphical solution, answer the next two questions:

$$\begin{aligned} \text{Minimize } & 8X_1 + 4X_2 \\ \text{subject to } & 3X_1 + 4X_2 \geq 6 \\ & 5X_1 + 2X_2 \leq 10 \\ & X_1 + 4X_2 \leq 4 \\ & X_1 \geq 0, X_2 \geq 0 \end{aligned}$$



A. $C_{ij} > U_i + V_j$
B. $C_{ij} < U_i + V_j$
C. $C_{ij} = U_i - V_j$
D. $C_{ij} = U_i + V_j$