

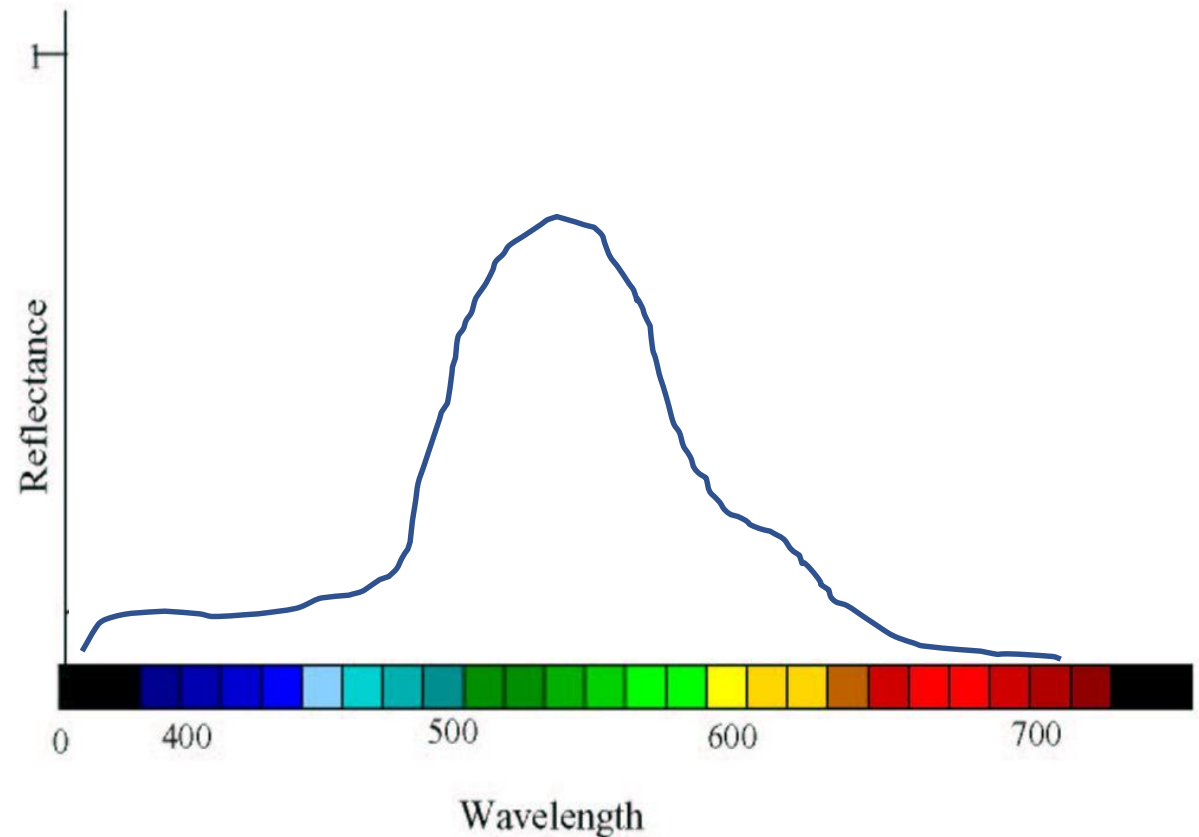
CS 111 Quiz #6: Instructions

- 10 questions
- Each question displayed for **one minute only**
- Record your responses for each question using your clickers/Reef app
- Record your responses when polling starts for that question
- If you miss a question, you will not receive any credit for it

Question #1

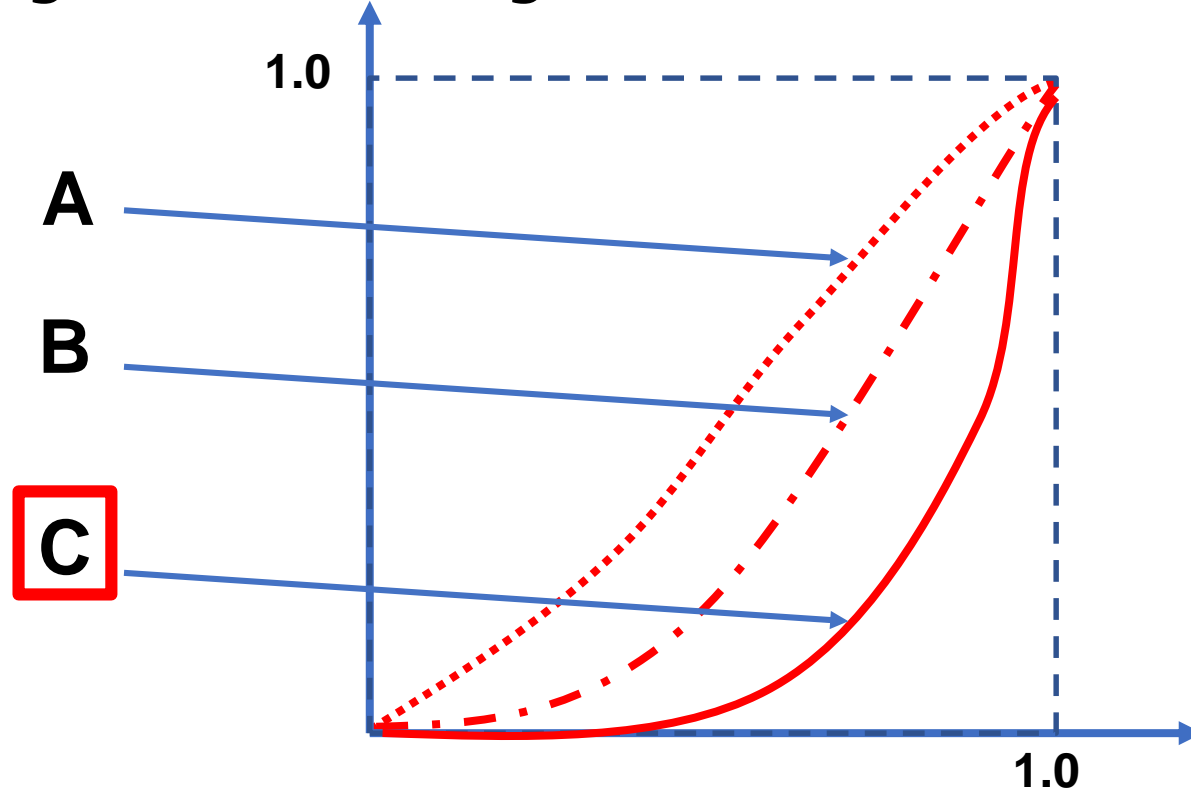
Which of the following objects is most likely to generate the reflectance graph below?

- A. White flash light
- B. Green Leaf**
- C. Blue sky
- D. Dark brown wood



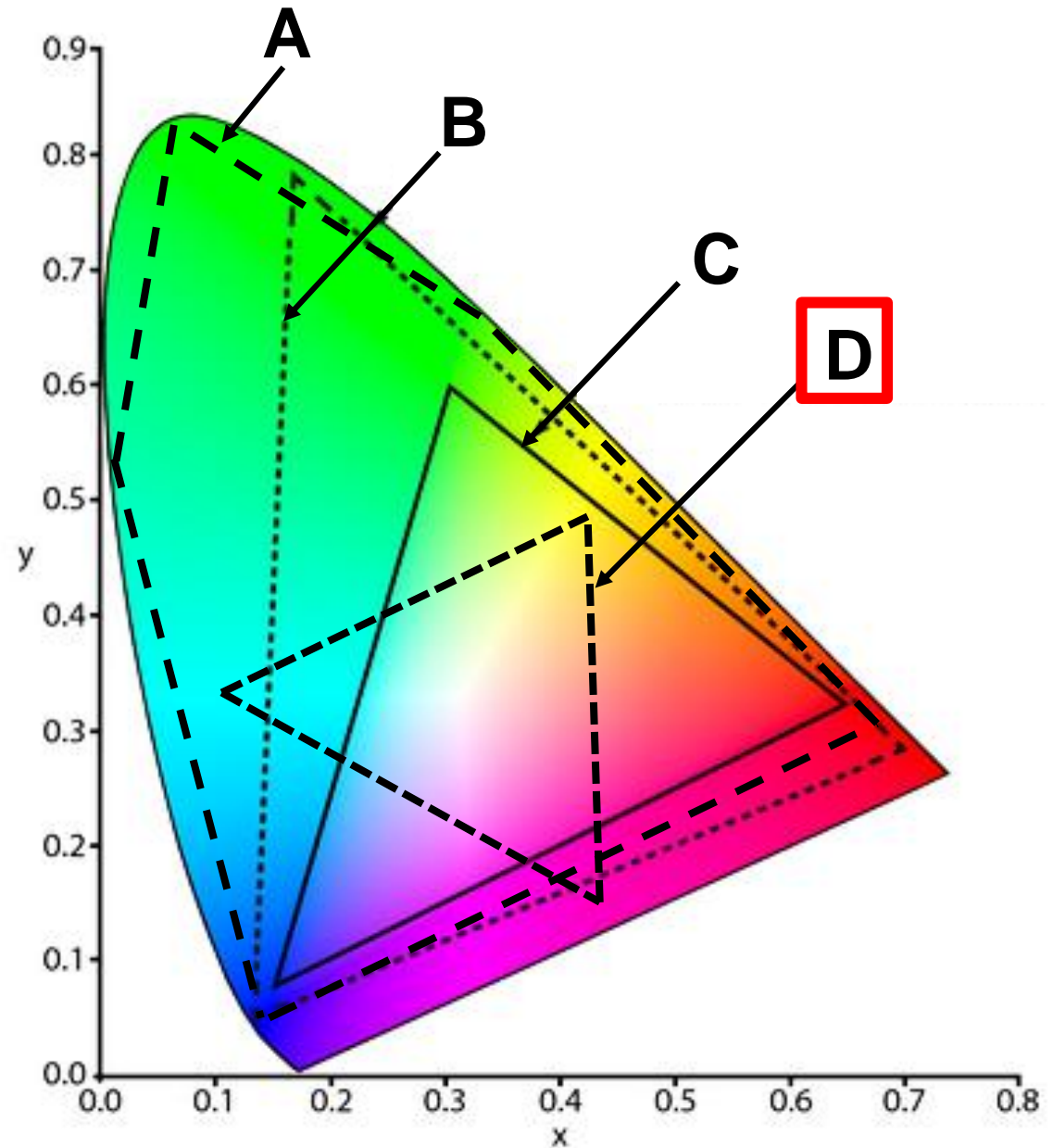
Question #2

Applying which of the following transfer functions will result in an image with the highest contrast?



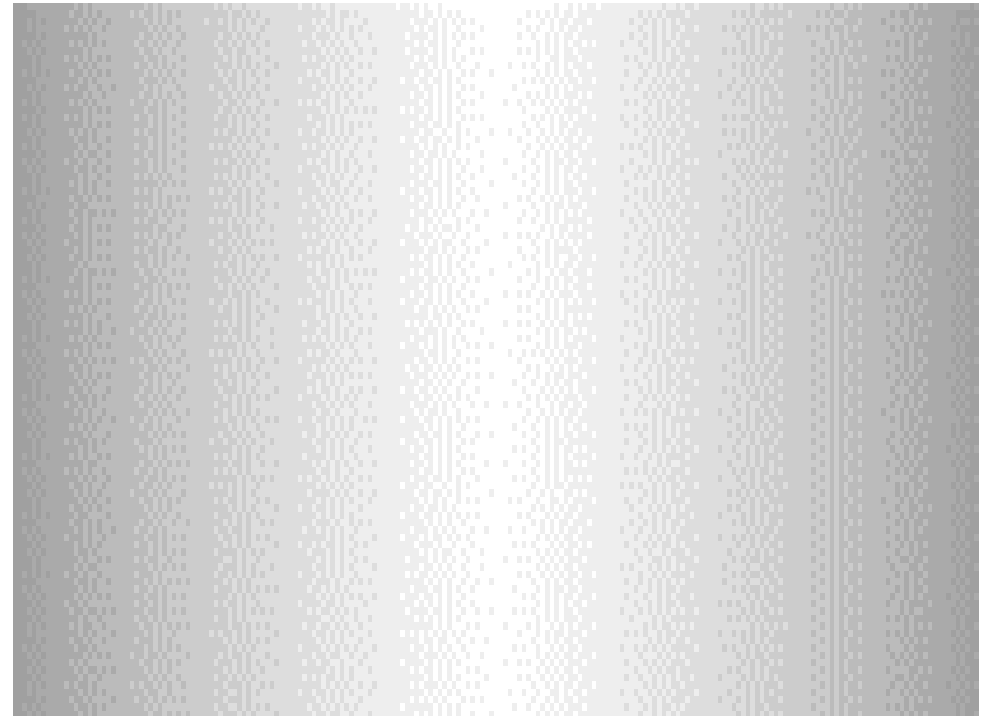
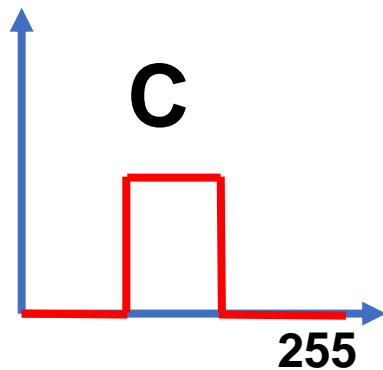
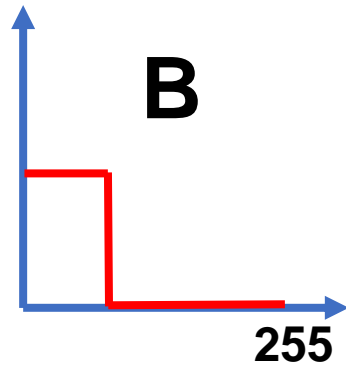
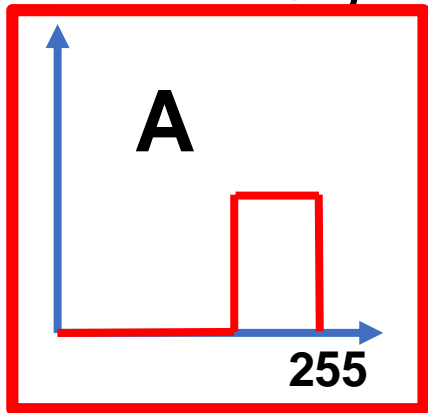
Question #3

Which of the following shows the transmittance profile of a subtractive color system?



Question #4

Which of the following histograms most likely corresponds to the image?



Question #5

Which geometric transformation does the following matrix represent?

- A. Rotation
- B. Scaling**
- C. Translation
- D. X-Skew
- E. Y-Skew

$$\begin{bmatrix} 2 & 0 \\ 0 & 2 \end{bmatrix}$$

Question #6

The matrix to reverse the operation of this geometric transformation is:

A. $\begin{bmatrix} 0 & 2 \\ 2 & 0 \end{bmatrix}$

B. $\begin{bmatrix} 1/2 & 0 \\ 0 & 1/2 \end{bmatrix}$

C. $\begin{bmatrix} 1 & 1/2 \\ 1/2 & 1 \end{bmatrix}$

D. $\begin{bmatrix} -2 & 0 \\ 0 & -2 \end{bmatrix}$

$$\begin{bmatrix} 2 & 0 \\ 0 & 2 \end{bmatrix}$$

Question #7

The transformation matrix to rotate an image by 30° clockwise is:

- A. $\begin{bmatrix} \cos(30) & -\sin(30) \\ \sin(30) & \cos(30) \end{bmatrix}$
- B. $\begin{bmatrix} \cos(-30) & -\sin(-30) \\ \sin(-30) & \cos(-30) \end{bmatrix}$**
- C. $\begin{bmatrix} \cos(30) & -\sin(30) \\ -\sin(30) & \cos(30) \end{bmatrix}$
- D. $\begin{bmatrix} \cos(-30) & -\sin(-30) \\ -\sin(-30) & \cos(-30) \end{bmatrix}$

Question #8

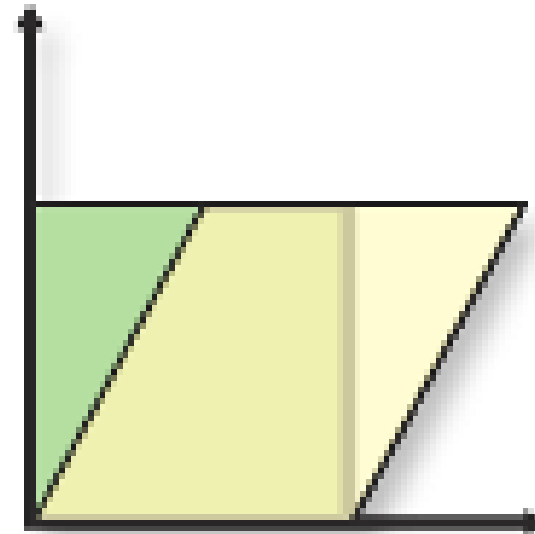
A 2-D translation cannot be represented by a 2x2 matrix.

- A. True**
- B. False

Question #9

In the image below, the green square is the original shape. The yellow shape is after the application of a transform. What transform was applied to the green square?

- A. Rotation
- B. Scaling
- C. Translation
- D. X-Skew**
- E. Y-Skew



Question #10

Let T , R and S denote a translation, rotation and scale transformation respectively. We would like to translate an image I to the origin, scale it, rotate it and then translate it back to its original position, forming a new image I' . The transformation M , that performs the entire operation (i.e. $I' = MI$), is:

A. $M = TSRT$

B. $M = T^{-1}RST$

C. $M = TSRT^{-1}$

D. $M = T^{-1}S^{-1}R^{-1}T$