

Pop Quiz (Week 2) [7 mins]

Name: _____

Student ID: _____

1. **[2]** An audio signal has a bandwidth of 150 Hz. How many samples do you need to sample it correctly?

300 samples

2. **[2]** Consider a 8-bit grayscale image $I(x, y)$ whose size is 256×256 . Each column of the image has the same gray value which starts from 0 for the left most column and increases by 1 as we sweep from left to right. Describe the shape the height field of this image forms in one word.

Plane

3. **[1]** If the number of bits is reduced, the quantization error is **increased**

4. **[3]** Draw a four pixel kernel that will take an image as input and output as image which has a quarter dimmed ghost to its bottom right. Make sure that the total energy is preserved.

[4/5, 0; 0,1/5]