

# ECE 341 - Homework #3

Dice Games and z-Transform. Due Friday, May 22nd

Please make the subject "ECE 341 HW#3" if submitting homework electronically to Jacob\_Glower@yahoo.com (or on blackboard)

## Farkle

- 1) Compute the odds of rolling a 3 of a kind, 3 of a kind in Farkle

$$\text{dice} = xxx\ yyy$$

- 2) Compute the odds of rolling 3 of a kind in Farkle.

$$\text{dice} = xxx\ abc$$

## z-Transforms

Assume X and Y have the following z-transforms

$$X = \left(\frac{1}{2}\right) \left(\frac{z+1}{z}\right) \quad Y = \left(\frac{1}{3}\right) \left(\frac{z^2+z+1}{z^2}\right)$$

- 3) Determine the z-transform and inverse z-transform of  $X^2$   
4) Determine the z-transform and inverse z-transform of  $XY$

Assume X and Y have the z-transform of

$$X = 0.2 \left(\frac{z}{z-0.8}\right) \quad Y = 0.5 \left(\frac{z}{z-0.5}\right)$$

- 5) Determine the z-transform and inverse z-transform of  $XY$