

STA 110  
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Name: \_\_\_\_\_

### Quiz 4

**Pot smoking.** A nationwide survey of seniors by the University of Michigan reveals that almost 70% disapprove of daily pot smoking according to a report in *Parade*, September 14, 1980. If 12 seniors are selected at random and asked their opinion, find the probability that the number who disapprove of smoking pot daily is

- (a) anywhere from 7 to 9;
- (b) at most 5;
- (c) not less than 8.

**Trick-or-treat** When trick-or-treaters come to Matt's house, he blindfolds them and lets them draw a bank-note from a box. There are 10 bank-notes in the box, 5 one-dollar bills, 3 five-dollar bills and 2 ten-dollar bills. Describe random variable  $X$ -the gain of trick-or-treater. Find  $EX$  and  $VarX$ .

**Loaded Dice** A loaded dice has the following probabilities of obtaining  $X = k$  points.

$$P(X = k) = c \cdot k, \quad k = 1, 2, \dots, 6,$$

where  $c$  is an unknown constant.

- (a) Find the constant  $c$ , and write down the probability distribution for  $X$ .
- (b) Find the probability of getting an odd number.
- (c) If the die was rolled two times what is the probability of getting sum 12.
- (d) Find  $EX$  and  $VarX$ .
- (e) If the die was rolled 3 times, describe a random variable  $Y$  - the number of 6s.