

Prof. David Draper
Department of Statistics
University of California, Santa Cruz

AMS 131: Quiz 1

Name: _____

(You can use the back of this page if necessary in any or all parts of the problem.)

In (a) and (b) below, say whether the statement is true, false, or meaningless, and explain briefly in each case.

- (a) If something has probability -1 , it can't happen.

- (b) If something repeatable has probability 0.8 of occurring, it can be expected to happen about four times as often as its opposite (for example, rain versus no rain).

- (c) Two cards will be dealt off the top of a well-shuffled standard deck of 52 playing cards (without replacing the first card). You have a choice:
 - (i) To win \$1 if the first card is an ace (there are four aces in a standard deck).
 - (ii) To win \$1 if the first card is an ace, and the second card is an ace.

Briefly explain which is better, intuitively and without calculating, and then work out both probabilities.

- (d) Two cards will be dealt off the top of a well-shuffled standard deck of 52 playing cards (without replacing the first card). You have a choice:
 - (i) To win \$1 if the first card is a club (there are 13 clubs in a standard deck).
 - (ii) To win \$1 if the first card is a club, or the second card is a diamond (there are 13 diamonds in a standard deck, and a card cannot be both a club and a diamond).

Briefly explain which is better, intuitively and without calculating, and then work out both probabilities.