When patrons gamble at the gaming tables in Las Vegas, they do not use money directly but rather place bets with chips. Each casino has unique chips in various denominations including $1, $5, $10, and $20 chips. The holder of these chips can cash them in at the issuing casino at any time for the specified value; i.e, a $1 chip can be purchased for $1 and can be cashed in for $1. There is no service fee for using the chips. In the discussion that follows, treat all references to a chip or chips as referring to $1 chips.

A roulette wheel is one popular type of gaming table. A roulette wheel has 36 numbered pockets from 1 to 36, alternating in color between red and black. The wheel also has two additional pockets, 0 and 00, both green. The wheel is spun, a small metal ball is placed in the spinning wheel, and as the wheel slows, the ball becomes trapped in one of the 38 pockets. This determines the winning number and color.

If a player bets one chip on a particular number and some other number wins, the losing wager is taken by the house so that the player loses $1. If the player bets on a number that becomes the winning number, the player’s bet is returned to the player along with 35 additional chips. Thus, if the player bets her only chip on a number, she will have either $0 or $36 once the wheel stops spinning. Since the odds of any number winning is one in 38, the expected return from placing a single bet on a single number is $0 times 37/38 plus $36 times 1/38, or about $0.95. Thus, on average the player will loses 5% of each bet. On average. Think of the 5% as the cost of gambling entertainment.

Similarly, a player can bet on a color, red or black. If the player bets on red and black comes up, the player loses her bet. But if the player bets on red and red comes up, the player gets her chip back plus one additional chip. The odds of losing are 20/38 (don’t forget green 0 and 00) while the odds of winning are 18/38, so the expected return equals $2 times 18/38, or again about $0.95.

Assume a hotel/casino offers a room and 50 chips for $120 per night. The chips are “special” (i.e., inferior) chips that can be bet only once: even if the bet wins, the “special” chip is retained by the house. Accordingly, a winning bet on a roulette returns only $35 times 1/38, or about $0.92 on average. These special chips cannot be cashed in for money, although if they are used to place a winning bet, the winnings are given to the player in standard chips that can be used again or cashed in. Similarly, if a “special” chip is placed on red and red wins, the player loses the winning “special” chip but receives one standard chip. On this bet, the expected return is $1 times 18/38, or about $0.47.

Assume betting on a single number and betting on black or red are the only possible bets.

T agrees to stay in the hotel/casino for one night and pays $120. T is given a room for 24 hours and 50 “special” chips. T takes the special chips, places them all on the color red, and waits for the wheel to stop spinning. (a) If the winning color is red so that the special chips are replaced with 50 standard chips, how should T be taxed? (b) If the winning color is black so that the special chips are lost and T receives nothing, how should T be taxed?