1. If you roll 2 dice, what is the probability of rolling double 1's?

(a). **Sample Space Method**.

$\{11, 12, 13, 14, 15, 16, 21, 22, 23, 24, 25, 26, 31, 32, 33, 34, 35, 36, 41, 42, 43, 44, 45, 46, 51, 52, 53, 54, 55, 56, 61, 62, 63, 64, 65, 66\}$

$P(\text{double ones}) = P(1 \text{ and } 1) =$

(b). Let's see if we can find a formula or rule based on the probabilities of each individual roll:
[Hint: What is the sample space for each individual roll?]

$P(\text{one on 1st die}) =$

$P(\text{one on 2nd die}) =$

Using the two probabilities above, can you see a way of combining them to get your answer to part (a)?

(c). Does rolling a 1 on the first die have any effect on the probability or outcome of rolling the second die?

2. You are taking a multiple choice test where each question has 4 possible answers (a, b, c, d). The instructor tells you that time is up when you still have 2 questions left, so you randomly fill in these 2 answers without reading the questions. What is the probability that you get both answers correct?

(a). **Sample Space Method**.

$\{aa, ab, ac, ad, ba, bb, bc, bd, ca, cb, cc, cd, da, db, dc, dd\}$
[Hint: In the sample space, how many of those combinations will be the correct one?]

$P(\text{both correct}) = P(1^{st} \text{ correct and } 2^{nd} \text{ correct})$

(b). Let's see if we can find a formula or rule based on the probabilities of each individual question:
[Hint: What is the sample space for each individual question and how many will yield the correct answer?]

$P(\text{1st answer correct}) =$

$P(\text{2nd answer correct}) =$

Using the two probabilities above, can you see a way of combining them to get your answer to part (a)?

(c). Does the fact that you answered the first question correctly have any effect on the probability or outcome of getting the second question correct?

3. You play "3 Strikes" on the Price is Right hoping to win a brand new car! Each of the distinct 5 digits in the price of the car is placed on a tile and put in a bag along with 3 x's (strikes). What is the probability of drawing 2 x's in a row?

(a). **Sample Space Method**. Assuming the price is \$19,765

{19	17	16	15	1x	1x	1x
	97	96	95	9x	9x	9x
		76	75	7x	7x	7x
			65	6x	6x	6x
				5x	5x	5x
					xx	xx
						xx}

$P(2\ \text{x}'s) = P(\text{x and x}) =$

(b). Let's see if we can find a formula or rule based on the probabilities of each individual draw:
[Hint: How many tiles are in the bag on each draw?]

$P(\text{x on 1st draw}) =$

$P(\text{x on 2nd draw}) =$

Using the two probabilities above, can you see a way of combining them to get your answer to part (a)?

(c). Does the fact that you got an x on the first draw have any effect on the probability or outcome of getting an x on the second draw?