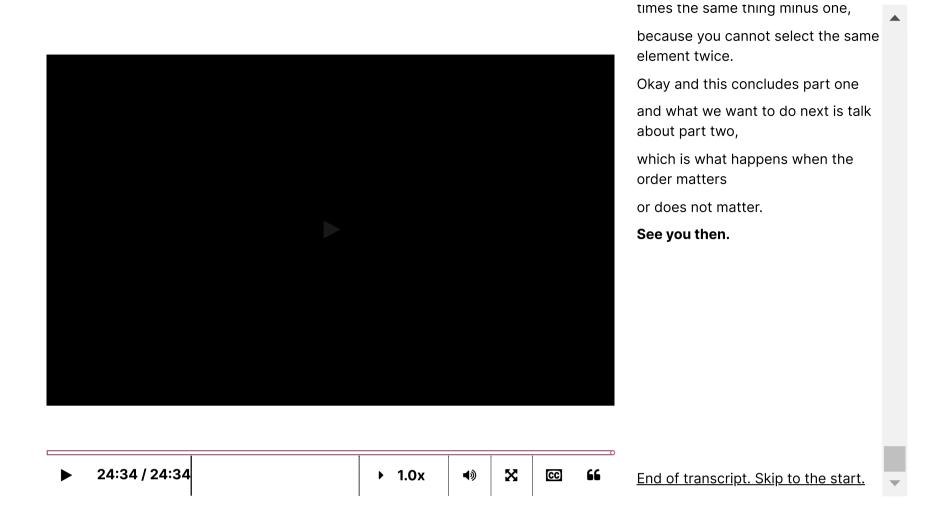
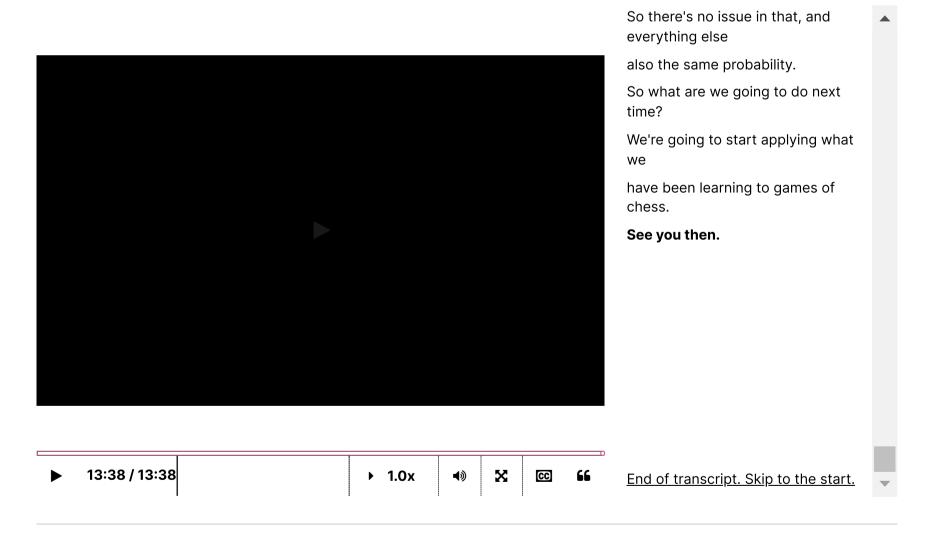


Part 1



Part 2



<u>5.4a_Probability_Repeated_Experiments</u>

<u>5.4b_Probability_Repeated_Experiments</u>

POLL

Which of the following are independent repetitive experiments?

RESULTS

card draws with replacement

and dualica without rapidacement

74%

 carα αraws without replacement 	15%
 neither 	13%
Submit	
Results gathered from 23 respondents.	
FEEDBACK Card draws with replacement will be independent repetitive experiments.	
1	
0 points possible (ungraded) You have two fair coins. If you flip a head with the first coin, what is the probability of f second?	ilipping a head with the
<u> </u>	
○ 0	
\bigcirc $\frac{1}{2}$	
$\bigcirc \frac{1}{4}$	
✓	
Explanation Flipping the first and the second coin are independent.	
Submit You have used 1 of 2 attempts	
Answers are displayed within the problem	
2 (Graded)	
1/1 point (graded) A bag has 3 red and 3 green apples. You start by randomly selecting one red apple fro following has the highest probability?	m the bag. Which of the
Select another red apple after replacing the first.	
Select another red apple without replacing the first.	
Select a green apple after replacing the first red apple.	
Select a green apple without replacing the first red apple.	

Explanation

- . .

- After replacement, there are 3 green and 3 red apples. The probability to select a red one is $\frac{1}{2}$.
- Withtout replacement, there are 3 green and 2 red apples. The probability to select a red one is $\frac{2}{5}$.
- After replacement, there are 3 green and 3 red apples. The probability to select a red one is $\frac{1}{2}$.
- Without replacement, there are 3 green and 2 red apples. The probability to select a red one is $\frac{3}{5}$.

1 Answers are displayed within the problem

3

0 points possible (ungraded)

Roll two fair and distinguishable six-sided dice. What is the probability that the outcome of the second die is strictly greater than the the first?

Explanation

The outcomes that give rise to this event are (1,2), (1,3),..., (1,6), (2,3), (2,4),..., (2,6), (3,4),..., (3,6), (4,5), (4,6), (5,6), where in each ordered pair, the numbers correspond to the first and second die respectively. It can be easily verified that there are 15 such outcomes, each of probability 1/36, thus $15 \times 1/36 = 5/12$.

Submit

You have used 1 of 4 attempts

1 Answers are displayed within the problem

4 (Graded)

3/3 points (graded)

5 Engineers and 3 artists align at random along line. What is the probability that the first and last are Engineers?

3/148/169/14

5/14

~

Explanation

The 5 engineers and 3 artists can line up in $\binom{8}{3}$ ways, each corresponding to one choice of the the 3 artist locations out of the total 8. Note that all these arrangments are equally likely, hence this space is uniform. If the first and last are engineers, then there are 6 locations left, and the number of ways to coose the locations of the artists is $\binom{6}{3}$.

Hence the probability that the first and last are engineers is

$$\frac{\binom{6}{3}}{\binom{8}{2}} = \frac{6 \cdot 5 \cdot 4}{8 \cdot 7 \cdot 6} = \frac{5}{14}.$$

In the sequential probability section we will see an easier way to find the answer.

Submit

You have used 1 of 2 attempts

1 Answers are displayed within the problem

0	points	possible	(ungraded)
---	--------	----------	------------

Which of the following are distributed uniformly when rolling two fair dice?

✓	The outcome (number) of the first die, e.g., "4", or "6",
✓	The ordered pair of outcomes, e.g., $(1,3)$, $(3,1)$, or $(6,6)$,

 $oxed{\ }$ The unordered pair of outcomes, e.g., $\{1,3\}$ or $\{6,6\}$,

 $oxed{oxed}$ the difference between the first and second outcomes, e.g. (1,3)
ightarrow -2,

the difference between the first and second outcomes mod 6, e.g. $(1,3) o (-2)_6 = 4$,

 $oxed{\ }$ The absolute value of difference (1,3)
ightarrow |1-3|=2 ,

 \checkmark The lower of the two outcomes, e.g. (1,3) o 1,

lacksquare the sum of the two outcomes, e.g. (1,3) o 4.

×

Explanation

- True.
- True.
- False. $P\left(\{1,3\}
 ight) = rac{2}{36}
 eq P\left(\{6,6\}
 ight) = rac{1}{36}$.
- False. $P(ext{difference is }0)=rac{6}{36}
 eq P(ext{difference is }1)=rac{5}{36}.$
- True.
- False. $P(ext{absolute difference is 0}) = \frac{6}{36}
 eq P(ext{absolute difference is 1}) = \frac{10}{36}$.
- False. $P\left(\text{minimum is 1} \right) = \frac{11}{36}
 eq P\left(\text{minimum is 2} \right) = \frac{9}{36}$.
- False. $P\left(\mathrm{sum\ is\ 2}\right)=rac{1}{36}
 eq P\left(\mathrm{sum\ is\ 3}\right)=rac{2}{36}.$

Submit

You have used 3 of 3 attempts

Answers are displayed within the problem

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