

# Probability and dice

What's the best set of properties to own on a Monopoly board?



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What's the best set of properties to own on a Monopoly board?

There is a statistically “best” answer to this question

And it all comes down to dice...

# Probability and dice

**Probability** looks at how likely things are to happen

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If you throw 2 dice:

There is only one way to  
throw a 12 on two six sided  
dice

$$6 + 6$$



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There are more ways to throw a seven:

$1 + 6, 2 + 5, 3 + 4, 4 + 3, 5 + 2, 6 + 1 = 6$  ways

How about 6?

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How about 6?

$1 + 5, 2 + 4, 3 + 3, 4 + 2, 5 + 1 = 5$  ways

How about a 5?

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There is only one way to throw a 12 on two six sided dice

$$6 + 6$$

How many ways in total?

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There are 36 ways in total

So the probability of throwing a 12 is 1 in 36



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So, which set of properties is best to own in Monopoly?



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The most likely space to end up on is Jail

Because there are so many ways to end up there:






- Chance
- Community Chest
- Three doubles
- Go to Jail space
- Land on Just Visiting



You're four times more likely to be on jail than on any other given square on the board

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After you leave jail it's much more likely you'll throw a 5, 6, 7, 8 or 9 (6 or 8 in particular)  
(26 out of 36 - 72% chance)

 FREE PARKING			COMMUNITY CHEST 		MARYLEBONE STATION 			ELECTRIC COMPANY 		IN  JAIL	VISITING
	VINE STREET £3,995 pcm	MARLBOROUGH STREET £2,554 pcm	BOW STREET £7,134 pcm	NORTHUMRL'D AVENUE £1,659 pcm	WHITEHALL £2,498 pcm	PALL MALL £5,302 pcm	JUST				

On average the orange set will earn about £25,000 a game. The dark blue (Mayfair) only £14,500. Green, Red and Yellow are also good sets - in that order. It's also cheaper to buy houses and hotels on Orange...

# Probability and dice

There is only one way to throw an 18 on three six sided dice

$$6 + 6 + 6$$

There are 216 ways in total

# Probability and dice

How about the probability of throwing 5 heads in a row when tossing a coin?

What are the odds of getting one head on a single throw?

How about on two throws?