

## Section 2.3: Calculating Probabilities Using

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2:41 PM

## Simple Events

classical probability:

the probability of an event happening equals the sum of the probabilities of the simple events in that event

notation:

$P(A)$ : probability of event  $A$  happening

if all simple events are equally likely, then

$$P(A) = \frac{n(A)}{n_{\text{tot}}}$$

$n(A)$  ← numbers of ways  $A$  can happen  
 $n_{\text{tot}}$  ← total number of simple events in the sample space (sometimes called  $n(S)$ )

demo: rolling two fair (well, presumably fair) four-sided dice

each individual die:

1	
2	
3	
4	

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sum of the two dice

2	
3	
4	
5	
6	
7	
8	

example: rolling two fair 4-sided dice:

find the probability of rolling the following sums:

sum	probability
2	$\frac{1}{16}$
3	$\frac{2}{16} = \frac{1}{8}$
4	$\frac{3}{16}$
5	$\frac{4}{16} = \frac{1}{4}$
6	$\frac{3}{16}$
7	$\frac{2}{16} = \frac{1}{8}$
8	$\frac{1}{16}$

sample space:

11	12	13	14
21	22	23	24
31	32	33	34
41	42	43	44

16 events in total