



## MITx: 6.041x Introduction to Probability - The Science of Uncertainty



Bookmarks

- ▶ Unit 0: Overview
- ▶ Entrance Survey
- ▶ Unit 1: Probability models and axioms
- ▶ Unit 2: Conditioning and independence
- ▶ Unit 3: Counting
- ▼ Unit 4: Discrete random variables

## Unit overview

**Lec. 5: Probability mass functions and expectations**

Exercises 5 due Mar 02, 2016 at 23:59 UTC

**Lec. 6: Variance; Conditioning on an event; Multiple r.v.'s**

Exercises 6 due Mar 02, 2016 at 23:59 UTC

**Lec. 7: Conditioning on a random variable; Independence of r.v.'s**

Unit 4: Discrete random variables &gt; Lec. 5: Probability mass functions and expectations &gt; Lec 5 Probability mass functions and expectations vertical1



Bookmark

**Exercise: PMF calculation**

(2/2 points)

As in the previous lecture clip, consider the same example of two rolls of a 4-sided die, with all 16 outcomes equally likely. As before, let  $X$  be the result of the first roll and  $Y$  be the result of the second roll. Define  $W = XY$ . Find the numerical values of  $p_W(4)$  and  $p_W(5)$ .

 a)  $p_W(4) =$   ✓ Answer: 0.1875

 b)  $p_W(5) =$   ✓ Answer: 0

Answer:

a) The event  $W = 4$  may occur in three different ways:  $(1, 4)$ ,  $(2, 2)$ ,  $(4, 1)$ . Since all 16 outcomes of the two rolls are equally likely,  $p_W(4) = \mathbf{P}(W = 4) = 3/16$ .

b) The event  $W = 5$  cannot happen, and so  $p_W(5) = \mathbf{P}(W = 5) = 0$ .

*You have used 1 of 2 submissions*

Exercises 7 due Mar  
02, 2016 at 23:59 UTC

**Solved problems**

**Additional  
theoretical  
material**

**Problem Set 4**

Problem Set 4 due Mar  
02, 2016 at 23:59 UTC

**Unit summary**

© All Rights Reserved



© edX Inc. All rights reserved except where noted. EdX, Open edX and the edX and Open EdX logos are registered trademarks or trademarks of edX Inc.

POWERED BY  
OPENedX

