Problem 4: Joint PMF

(5/5 points)
The joint PMF, $p_{X,Y}(x,y)$, of the random variables X and Y is given by the following table:

$y=1$	$4c$	0	$2c$	$8c$
$y=0$	$3c$	$2c$	0	$2c$
$y=-1$	$2c$	0	c	$4c$
	$x=-2$	$x=-1$	$x=0$	$x=1$

1. Find the value of the constant c.

$c =$ 1/28 ✔

2. Find $p_X(1)$.

$p_X(1) =$ 1/2 ✔

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
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

- Exam 1
- Unit 5: Continuous random variables
- Unit 6: Further topics on random variables
- Unit 7: Bayesian

3. Consider the random variable $Z = X^2Y^3$. Find $\mathbf{E}[Z \mid Y = -1]$.

$\mathbf{E}[Z \mid Y = -1] =$ -12/7 ✔

4. Conditioned on the event that $Y \neq 0$, are X and Y independent?

Yes ▾ ✔

5. Find the conditional variance of Y given that $X = 0$.

$\mathbf{var}(Y \mid X = 0) =$ 8/9 ✔

You have used 3 of 3 submissions

DISCUSSION

Click “Show Discussion" below to see discussions on this problem.

inference

- Exam 2
- Unit 8: Limit theorems and classical statistics
- Unit 9: Bernoulli and Poisson processes
- Unit 10: Markov chains
- Exit Survey
- Final Exam

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