

Re: probability

Source: <http://sci.tech--archive.net/Archive/sci.math/2005-06/msg02074.html>

- *From:* schoenfeld1@xxxxxxxxxx
 - *Date:* 14 Jun 2005 02:22:53 -0700
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John Doe wrote:

- > I just finished a test and I think the exam writers came up with wrong
- > answers for 2 questions[please, let me know if I'm right or wrong]:
- > If an ordinary coin is tossed 4 times, what is the probability that all 4
- > tosses will be either all heads or all tails?
- > They say 1/16
- > I think $p = 1/8$ because $1/16$ to get all heads + $1/16$ to get all tails = $1/8$
- > (because they say either all tails or all heads)
- > Am I right?

Yes. It's simply asking what's the probability of tossing the same side
3 more times after your first toss = $(1/2)^3 = 1/8$

- > 2nd question:
- > what is the probability of obtaining either tails or heads in 5 tosses of a
- > fair coin?
- > They say 1/2
- > I think probability = 1, There are only 2 possibilities. Even in 1 toss
- > there is a 100% chance of getting either heads or tails.
- > If the question were: what's the probability of getting heads in 5 tosses
- > I'd do
- > $1 - 1/16 = 15/16$ [1/16 probability of getting all tails & 15/16 probability
- > of getting at least 1 heads in 4 tosses]

The exam writer wrote in ambiguous language, that's all. Likely he is
not native english speaking.

What he probably meant in Question 1 was "select a side – heads or
tails – what is the probability of tossing that side 4 times in a row"
= $1/16$.

Question 2 probably meant "Select a side heads or tails, what is the
probability that you will toss that side after 5 tosses." = $1/2$.

- **References:**

- ◆ **probability**

- ◇ *From:* John Doe

- Prev by Date: **Re: A completely different solution?**
- Next by Date: **Re: Humanistic mathematics (Cantor's Theory)**
- Previous by thread: **Re: probability**
- Next by thread: **Re: Dubya can play chess?**
- Index(es):
 - ◆ **Date**
 - ◆ **Thread**