

Sir

In stating the case of the wager, you seem to have exactly the same notion of it with me; & to the question; which of the three chances should Peter chuse were he to have but one throw for his life? I answer, that if I were Peter, I would chuse the first. To give you the computation upon which this answer is grounded I would state the question thus: -

The question might have been thus stated, & answered in fewer words: if Peter is to have but one throw for a stake of 100 l. & has his choice of throwing either one six at least upon six dice, or two at least upon twelve, or three at least upon eighteen, which throw ought he to chuse; & of what value is his chance or expectation upon every throw, were he to sell it? Answer: upon six dice there are 46656 chances, whereof 31031 are for him; upon 12, there are 2176782336 chances, whereof 1346704211 are for him: therefore his chance or expectation is worth the 31031/46656th part of 1000 l. in the first case, & the 1346704211/2176782336th part of 1000l. in the second; that is 665 l. 0 s. 2 d. [*] in the first case, and 618 l. 13 s. 4 d. in the second. In the third case, the value will be found still less. This, I think sir, is what you desired me to give you an account of, & if there be any thing further, you may command,

Your most humble
And most obedient servant
Is:NEWTON.

Cambridge, Dec. 16. 1693

[*] Should be 665l. 2s. 5p. (Turnbull)

from H. W. Turnbull, *ed.*, *The Correspondence of Isaac Newton*,
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