Consider the following board game, representing the Swedish sport of moose hunting.

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| **Hunter**  **start** |  |  |  |  |  | **Moose**  **start** |  |  |  |  | **Moose**  **home** |
| **1** | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

The game board has 12 spaces. A moose starts on space 7, and a hunter on space 1. On each game turn a 6-sided die is rolled. On a result of 1 to 4, the moose moves that many spaces forward. On a result of 5 or 6, the hunter moves that many spaces forward. The moose wins if it reaches space 12 (the final roll does not have to be exact, moving past space 12 is ok). The hunter wins if he catches the moose, in other words reaches the same or a higher space.

What are the probabilities of winning for the moose and the hunter?

Your assignment is to create a mathematical or statistical model to find these probabilities, and preferably implement the solution as a computer program in whatever language you like. Prepare to show/explain the model and answer questions. You can make short supporting presentation.

**Bonus question 1**: Preparing more than one solution to the problem will be treated as a big advantage.

**Bonus question 2**: Prepare a presentation and be ready to present your solutions and answer questions.

**Bonus question 3**: Can you say something about how long the game would end – the expected number of die throws until the game ends?

**Bonus question 4**: Can you make your model easy extendable for different initial conditions?