3. Naasir is playing a game with two friends. The game is designed to be a game of chance

so that the probability of Naasir winning each game is $\frac{1}{3}$

Naasir and his friends play the game 15 times.

(a) Find the probability that Naasir wins

  (i) exactly 2 games,

  (ii) more than 5 games.

Naasir claims he has a method to help him win more than $\frac{1}{3}$ of the games. To test this claim,

the three of them played the game again 32 times and Naasir won 16 of these games.

(b) Stating your hypotheses clearly, test Naasir's claim at the 5% level of significance.

(4)