F.5 Maths revision test 4

1. Solve $2\sin(3\theta + 60^o) = \tan 60^o \quad 0 < \theta < 180^o$

2. Solve $3\cos^2\theta + 5\sin\theta - 1 = 0 \quad 0 < \theta < 360^o$

3. Solve $5x - 4 + 2 = x$

4. If one of the roots of $3x^2 + kx - 5 = 0$ is $^1/_3$,

   a) find the value of k and other roots.

   b) find a quadratic equation whose roots are double the roots of $3x^2 + kx - 5 = 0$.

5. a) In a bunch of 8 keys, 2 keys can unlock a door. A man chooses the keys randomly to open the door.

   i) what is the chance that he still cannot open the door in 3 trials.

   ii) what is the chance that he can unlock the door within 2 trials.

   b) A & B play a set of games. Anyone who wins one game gets one point. Anyone who gets 3 points wins the whole set of games. If the probability that A will win a game is $^2/_3$.

   i) find the probability that A will beat B by three games to one game.

   ii) after A has won two points & B has won one points, what is the probability that A win the whole set of games.