Learning Objective: To solve a range of A* and A probability questions

Answer these questions without drawing a tree diagram

1) Peter travels through three sets of traffic lights on the way to school and the probability that the lights are green equals 0.3. Find [assume lights cannot be amber]:
   a) P(all three lights are green)
   b) P(all three lights are red)

2) There are 17 boys and 13 girls in a room. A teacher picks two pupils out at random. Find:
   a) P(both children are boys)
   b) P(both children are girls)

3) A coin is biased towards heads. Jack tosses the coin and finds there were 60 heads.
   a) Write down the relative frequency of achieving a head (as a decimal)
   b) Jack now tosses the coin 4 times. Estimate the probability of getting four heads

Tree diagram questions

1) A bag contains 3 red and 4 green tokens. Sam takes out two tokens.
   a) Draw a tree diagram to represent this situation
   b) Find P(getting two red tokens)
   c) Find P(getting exactly one red token)

2) Timothy plays a game. The game has two rounds. The probability he wins the first round is 0.3. The probability he loses the second round is 0.9.
   a) Draw a tree diagram to represent this
   b) He wins if he wins both rounds. What is the probability that he wins.
   c) If he plays 500 times, how many times would he expect to win.

3) Samantha plays a game, also with two rounds. You are told that
   P(winning first round)=0.4
   P(winning both rounds)=0.12
   a) Produce a tree diagram and find the probability she loses both rounds