GRADE 11	TERM 3	PROBABILITY – PORTFOLIO ASSIGNMENT	E-classroom

Total Marks: 45

Time allocated: 45 minutes

CAPS Topic: Probability
Section: Expressions of probability; Prediction; Representations for determining possible outcome; Evaluating Expressions involving probability

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Probability

At a fair, customers can pay R5 to attempt to win a prize in a game called "Two Reds". The aim of the game is to draw two tokens out of a bag at random, with a winning draw being two red tokens in a row. If a person wins, they get R10. The bag contains equal numbers of red, blue and white tokens. There are 24 tokens in the bag in total. After the first token is drawn, it is replaced to keep the number of tokens in the bag the same (playing with replacement).

1. What is the probability of drawing a red token the first time round? Express your answer as a fraction. (2)
2. Is this the same as the probability of drawing a red token the second time? Explain your answer. (3)
3. Draw a tree diagram to show the possible combinations of colours when drawing two tokens. (9)
4. What is the probability of getting two red tokens? Express your answer as a fraction. (2)
5. What chance do you stand of winning this game? Express your answer as a percentage. (2)
6. What chance do you stand of losing the game? Express your answer as a percentage. (2)
7. Do you think that this is a 'fair' game? Explain your answer. (3)
8. If 400 people play the game, how much money does the stall owner take in? (2)
9. Out of the 400, how many are theoretically likely to win the game? (3)
10. How much money will the stall owner possibly need to pay out in winnings? (2)
11. Use your tree diagram to answer the following questions:
    a. What is the probability of drawing one red and one white token? (2)
    b. What is the probability of drawing two tokens of the same colour? (2)
    c. What is the probability of drawing out one blue token with any other colour? (2)
    d. What is the probability of drawing out a red token first, then any other colour? (2)
    e. What is the probability of getting a blue and then a green token? (2)
12. How do you think this game can be adjusted to make it fair for the customers (to give them a fair chance at winning)? (5)

[45]