IM3 Unit 3 Quiz 1 - Calculator Active

November 21, 2017

Full marks are not necessarily awarded for a correct answer with no working. Answers must be supported by working and/or explanations. In particular, solutions found from a graphic display calculator should be supported by suitable working, e.g. if graphs are used to find a solution, you should sketch these as part of your answer. Where an answer is incorrect, some marks may be given for correct method, provided this is shown by written working. You are therefore advised to show all working..

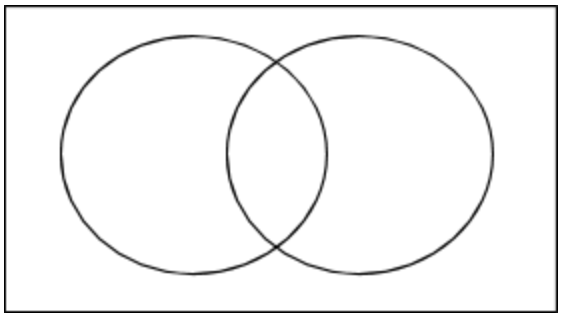
SECTION A

Answer all questions in the spaces provided.

1. At an all boys school there are 100 boys in the 10th grade class. Of those, 55 play rugby and 75 play football.

    a. If 10 boys don't play any sport, how many boys play *both* football and rugby? [3m]

    b. Complete the following Venn Diagram, be sure to label the circles. [3m]



    c. What is the probability that a randomly selected boy plays only rugby? [2m]

    d. Of the boys who play rugby, what is the probability that a randomly selected rugby player is also a football player? [2m]

2. 10 students have applied to be part of a three-member student council special committee. Of the applicants there are seven girls and three boys.

    a. If gender doesn't matter, how many different three-member committees can be formed from the 10 applicants? [2m]

    b. How many ways can the three-member committee have only girls on it? [2m]

    c. If the committee is randomly chosen, what is the probability that it has exactly one boy and two girls? [3m]

    d. Now suppose that one student will be chosen as the committee chair, and three more are chosen as general committee members (for a total of four members). How many different ways can that happen? [3m]

3. Amina needs a new password for her computer. She is tired of her old password: "huggybunny." She has decided to create a six-character password that uses five capital letters and one number. She does not want to use the letters Q, X, B, or F, and she only wants to use an odd number (Example: AN7PS is good , but Q2HRP is not). Given those restrictions, how many unique passwords does Amina have to choose from? [5m]