FORM TP 2012038

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MAY/JUNE 2012

CARIBBEAN EXAMINATIONS COUNCIL

SECONDARY EDUCATION CERTIFICATE EXAMINATION

ADDITIONAL MATHEMATICS

Paper 032 – General Proficiency

ALTERNATIVE TO SBA

90 minutes

12 JUNE 2012 (p.m.)

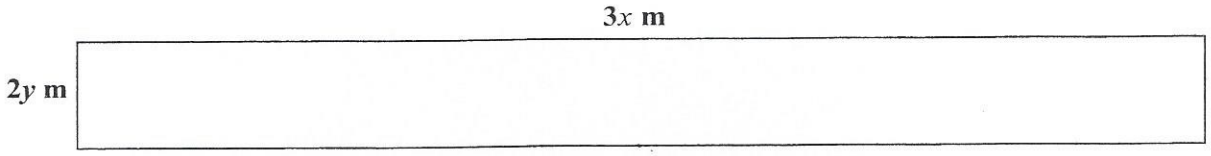
Answer all parts of the given question.

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO.

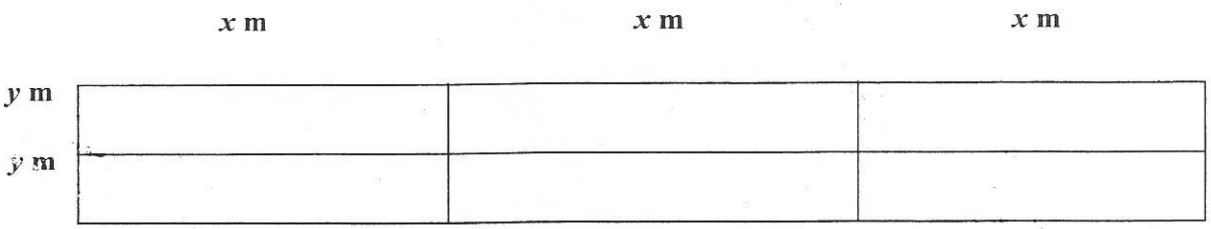
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(a) Two sports clubs, P and Q, wish to use 600 m of fencing to enclose a court. They wish to determine which design gives the maximum area.

Sports Club P uses the 600 m of fencing to make a rectangular court measuring $3x$ m by $2y$ m as shown in the diagram below.



Sports Club Q uses the 600 m of fencing to make six equal-sized rectangular courts that are adjacent to each other as shown in the diagram below. Each court measures x m by y m.



For Sports Club P the mathematical problem is to maximize the area of enclosure to satisfy its perimeter and the following conditions:

Maximize $A = 6xy$
Subject to $6x + 4y = 600$

(i) Formulate the **mathematical** problem for Sports Club Q. **(2 marks)**

(ii) Determine the MAXIMUM area of the court for Sports Club Q. **(3 marks)**

(iii) Show that Sports Club P has the maximum area when a square enclosure is used and determine the MAXIMUM possible area. **(4 marks)**

(iv) Suggest which sports club design should be used. **(1 mark)**

(b) The numbers $\log (a^3 b^7)$, $\log (a^5 b^{12})$ and $\log (a^8 b^{15})$ are the first three terms of an arithmetic series. The 12th term of the series is $\log b^n$. Calculate the value of n. **(10 marks)**

Total 20 marks

END OF TEST

IF YOU FINISH BEFORE TIME IS CALLED, CHECK YOUR WORK ON THIS TEST.