CARIBBEAN EXAMINATIONS COUNCIL

CARIBBEAN SECONDARY EDUCATION CERTIFICATE* EXAMINATION

MATHEMATICS

Paper 032 – General Proficiency

1 hour

READ THE FOLLOWING INSTRUCTIONS CAREFULLY.

1. This paper consists of TWO questions. Answer BOTH questions.

2. Write your answers in the spaces provided in this booklet.

3. Do NOT write in the margins.

4. All working MUST be clearly shown.

5. **A list of formulae is provided on page 4 of this booklet.**

6. If you need to rewrite any answer and there is not enough space to do so on the original page, you must use the extra page(s) provided at the back of this booklet. **Remember to draw a line through your original answer.**

7. **If you use the extra page(s) you MUST write the question number clearly in the box provided at the top of the extra page(s) and, where relevant, include the question part beside the answer.**

<u>Required Examination Materials</u>

Electronic calculator
Geometry set

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

A hardware store has a sale on hammers, drills and spanners. A hammer is sold for $15, a drill for $75 and a spanner for $25. **Customer A** bought 9 hammers, 14 drills and 2 spanners, and **Customer B** bought 8 hammers, 6 drills and 7 spanners.

(i)   Construct the following matrices:

a)   Matrix P, of order 3×1, to show the prices of the items on sale

....

(1 mark)

b)   Matrix N, of order 2×3, to show the number of items bought by the two customers

....

(1 mark)

(ii)   Calculate, using a matrix method, the TOTAL amount spent by EACH of the customers.

....
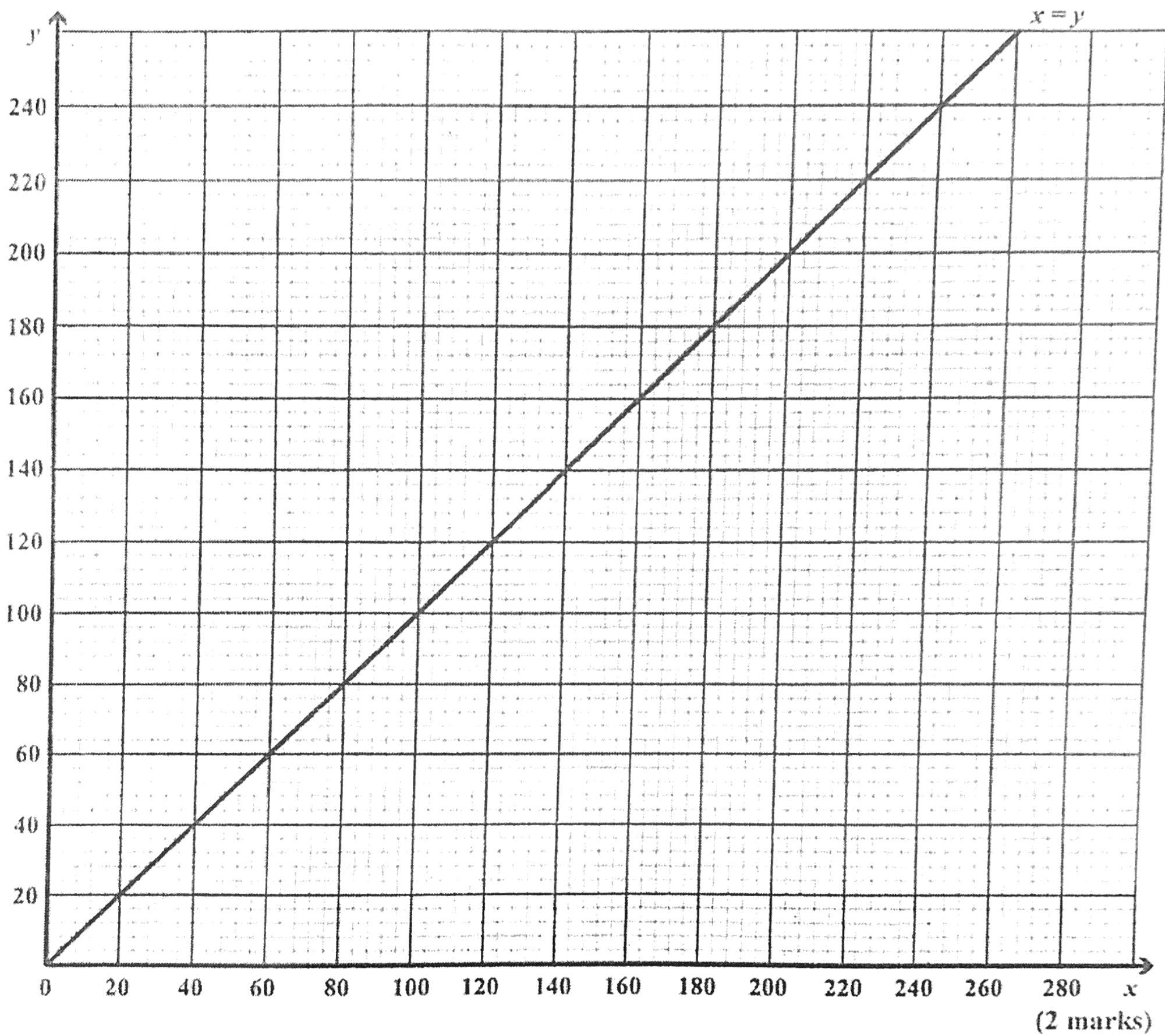
(2 marks)

(b)   Teacher Mabel is providing a meal for **all** the junior students in her school. Each student will have either a hamburger or a pizza. The cost of a hamburger is $4 while the cost of a pizza is $5. Let x represent the number of hamburgers and y the number of pizzas that she buys.

(i)   Fill in the missing equations/inequalities in the table below to represent the conditions given in Column 2.

	Condition	Equation/Inequality
a)	Each of the 220 students must get one meal.	_____
b)	Teacher Mabel has no more than $900 to cater for the meals for all of the students.	_____
c)	She must buy more hamburgers than pizzas.	$x > y$

(2 marks)

(ii) The line corresponding to the inequality $x > y$ is shown on the graph below. On the graph, draw the lines corresponding to the other two equations/inequalities in the table on page 6.

(2 marks)

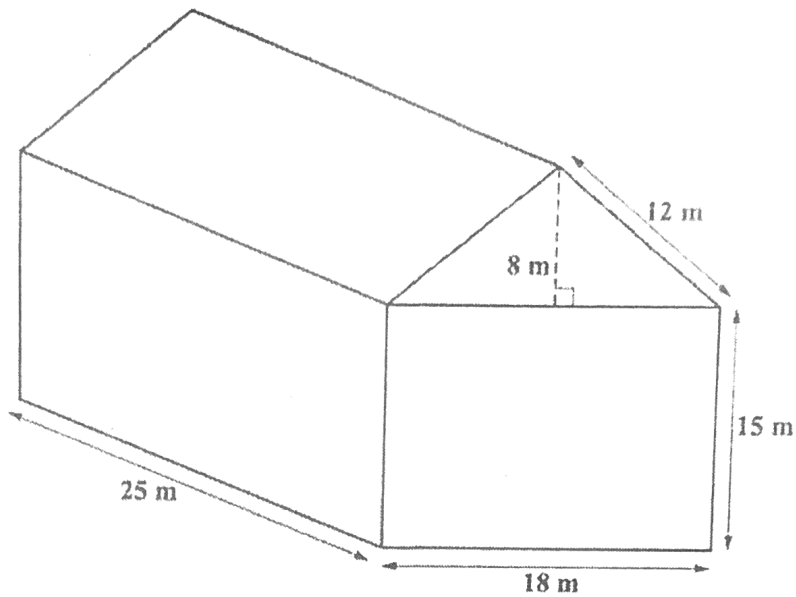(iii) Using your graph or otherwise, determine the MAXIMUM number of hamburgers and pizzas that Teacher Mabel can buy.

....

(2 marks)

Total 10 marks

2.   John makes a wooden barn to store grains for his farm animals. The barn is in the shape of a prism with a pentagonal cross-section and has dimensions as shown in the diagram below

(a)   Show that the TOTAL **outer** surface area of the barn (excluding the floor) is 2 034 m².

....

(4 marks)

0 1 2 3 4 0 3 2 0 8

(b)   (i)   Given that 1 gallon of paint covers approximately 28 square metres of surface, determine the TOTAL amount of paint, **in litres**, that is needed to paint the outer surface area of the barn. (1 gallon ≈ 3.79 litres)

....

(3 marks)

(ii)   If the paint is sold in one-gallon containers only, how many containers of paint are needed to complete the job?

....

(1 mark)

0 1 2 3 4 0 3 2 0 9

(c)   Determine the capacity (volume) of the barn.

....

(2 marks)

Total 10 marks

END OF TEST

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