



THE GOVERNMENT OF THE REPUBLIC OF TRINIDAD AND TOBAGO
MINISTRY OF EDUCATION

**NATIONAL CERTIFICATE OF SECONDARY
EDUCATION 2018**

(Level 1)

MATHEMATICS

PAPER II

TIME: 90 MINUTES

Student's Name _____

School's Name _____

School's ID

| | | | | | |
|--|--|--|--|--|--|
| | | | | | |
|--|--|--|--|--|--|

Student's Number

| | | |
|--|--|--|
| | | |
|--|--|--|

**MATHEMATICS
FOR EXAMINERS USE ONLY**

| TABLE | EXAMINER | MARKER | QUESTION NUMBER | TOTAL |
|-------------------|-----------------|---------------|----------------------------|--------------|
| Section I | | | | |
| | | | 1 | |
| | | | 2 | |
| | | | 3 | |
| | | | 4 | |
| | | | 5 | |
| | | | 6 | |
| Section II | | | | |
| | | | 7 | |
| | | | 8 | |
| | | | 9 | |

INSTRUCTIONS

Read the following instructions carefully.

1. This paper consists of TWO (2) sections – Sections I and II.
2. There are six (6) questions in Section I and three (3) questions in Section II.
3. Answer ALL six (6) questions in Section I.
4. Answer ANY TWO (2) questions in Section II.
5. Write your answers in the spaces provided in this test booklet.
6. Write proper statements and show all working.
7. If you are finished before time is called, go back and check your work.
8. Remember to complete the following on the cover of your answer booklet:
 - Student's Name
 - School's Name
 - School's ID
 - Student's Number
9. Candidates are permitted to use the following materials:
 - Calculators (Non-Programmable)
 - Geometry Set
 - Graph Paper (provided)

NO PROGRAMMABLE CALCULATORS MUST BE USED.

NO CELLPHONE CALCULATORS ARE ALLOWED.

SECTION I

ANSWER ALL QUESTIONS IN THIS SECTION

Write your answers in the spaces provided. Show all working.

1. (a) Calculate the exact value of $3\frac{3}{4} \div \frac{5}{8}$.

(3 marks)

(b) Convert $\frac{5}{8}$ to a percent.

(2 marks)

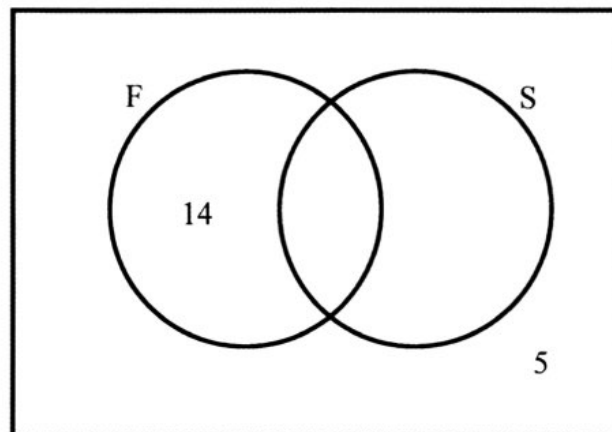
(c) Express 6489 in standard form.

(1 mark)

(Total 6 marks)

2. In a class of 40 students,
14 students study French only,
8 students study both Spanish and French,
21 students study Spanish,
5 students do not study either French or Spanish.

(a) Complete the Venn Diagram below to show the information given above.



(2 marks)

(b) How many students in the class study only one of these languages?

(2 marks)

(c) What is the probability that a student chosen at random studies both French and Spanish?

(2 marks)

(Total 6 marks)

3. (a) Simplify the expression

$$3(x - 2)$$

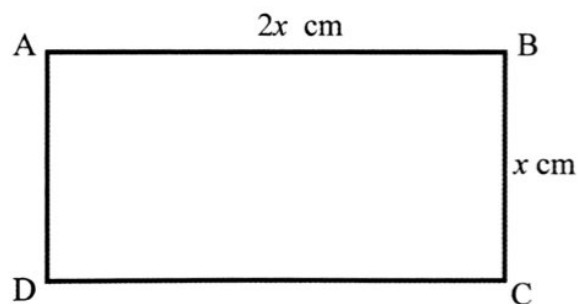
(1 mark)

- (b) Solve the equation

$$6x - 8 = 16 + 2x$$

(3 marks)

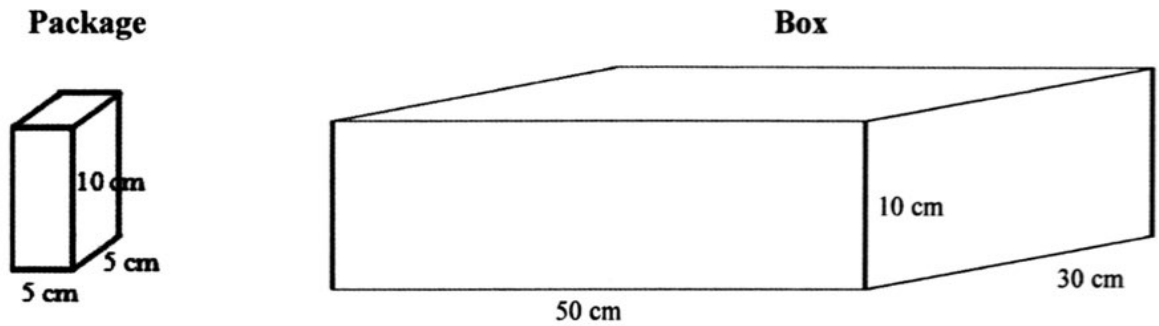
- (c) The diagram below shows a rectangle ABCD. The length of the rectangle is twice its width. If the perimeter of the rectangle is 18 cm, calculate the value of x .



(2 marks)

(Total 6 marks)

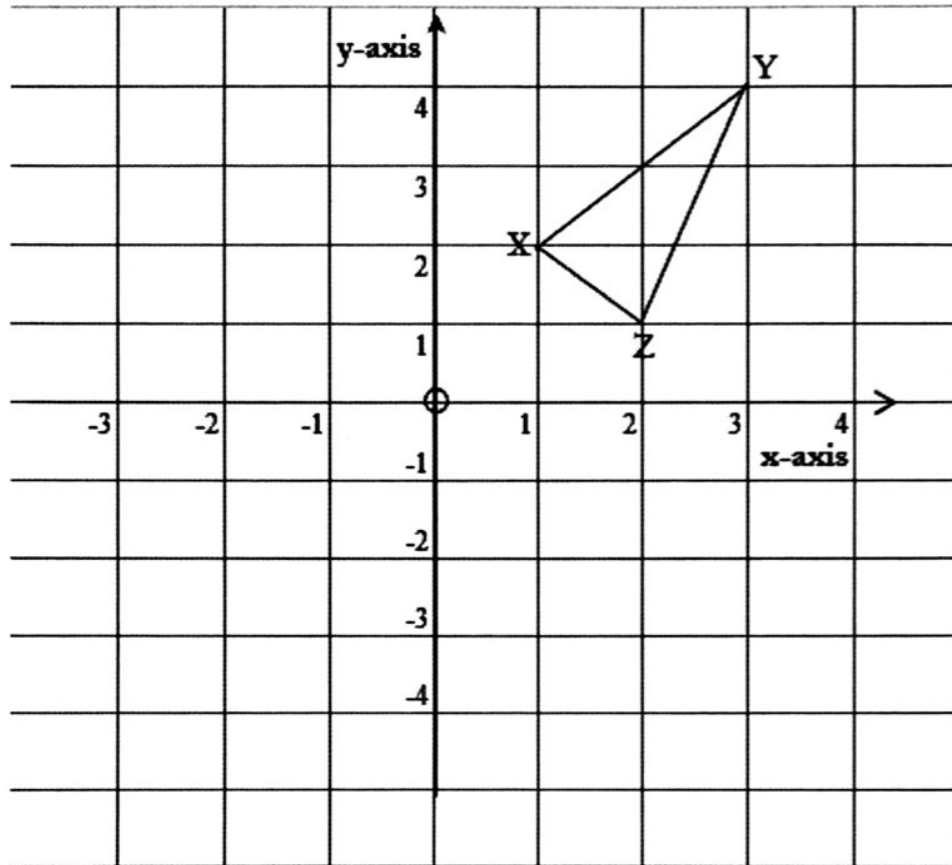
4. Packaged cookies are loaded in a box for transport to supermarkets and groceries nationwide. The dimensions for both the packages and boxes are shown below (not drawn to scale).



- (a) Calculate the volume of a package. (2 marks)
- (b) Determine the number of packages that will completely fill the box. (2 marks)
- (c) Convert the volume of a box from cubic centimetres to cubic metres. (2 marks)

(Total 6 marks)

5.

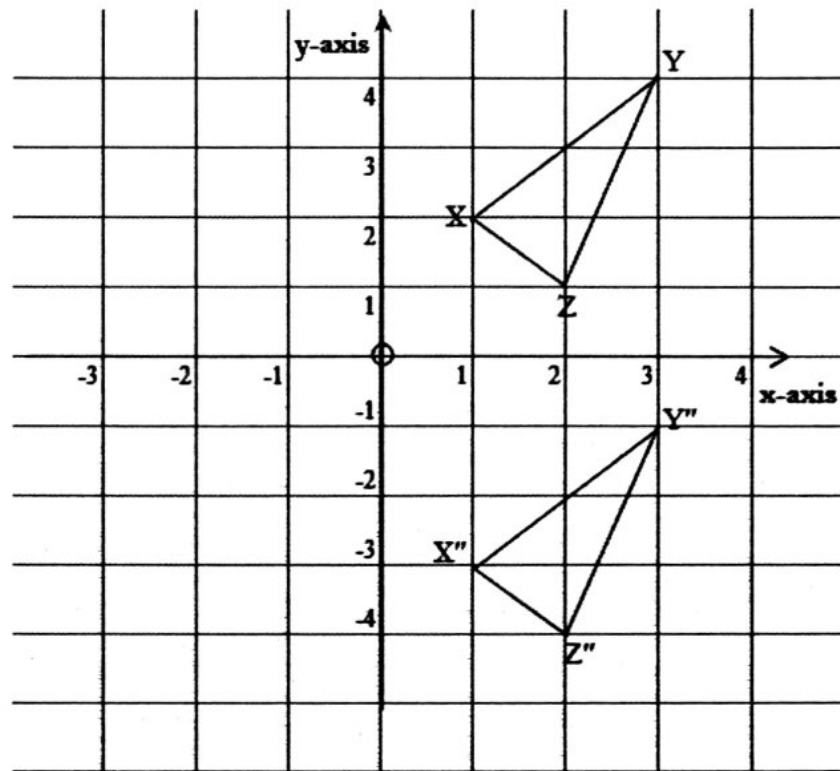


- (a) Using the graph above, state the coordinates of the points X, Y and Z. (2 marks)

X _____ , Y _____ , Z _____

- (b) On the grid above, draw X' , Y' and Z' , the image of XYZ under a reflection in the y axis. (2 marks)

(c)



(c) Describe the translation which maps $\triangle XYZ$ unto $\triangle X''Y''Z''$. (2 marks)

(Total 6 marks)

6. (a) The table below shows the preferred ice-cream flavours of 30 students in a class. Complete the table below.

| Preferred Flavour | No. of Students |
|-------------------|-----------------|
| Chocolate | 4 |
| Vanilla | 8 |
| Cherry | |
| Kiwi | 2 |
| Pistachio | 6 |

(2 marks)

- (b) What SINGLE flavour was preferred by $\frac{1}{5}$ of the students in the class? (2 marks)

- (c) (i) What was the LEAST liked flavour? (1 mark)

- (ii) What is the modal flavour? (1 mark)

(Total 6 marks)

SECTION II

ANSWER TWO (2) QUESTIONS ONLY FROM THIS SECTION

7. (a) Mary travelled from her home to San Fernando and purchased the following items:

| Item | Cost |
|-------------|-------------|
| Dress | \$90.00 |
| Shoes | \$120.00 |
| Pants | \$100.00 |

VAT is charged at a rate of 12.5%

- (i) Calculate her bill without VAT. (1 mark)

- (ii) Calculate her bill including VAT. (3 marks)

- (iii) US\$1.00 \equiv TT6.80
How much US\$ will Sita receive if she converts TT\$3400? (2 marks)

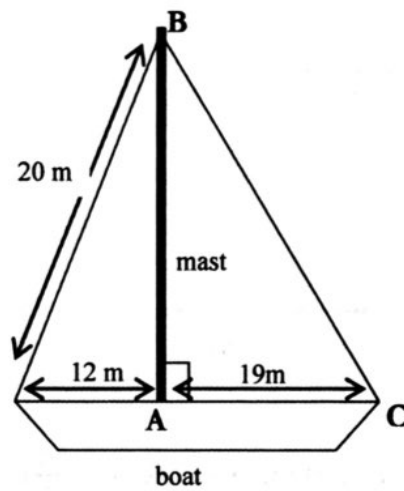
- (b) (i) Using a ruler, a pencil and a pair of compasses only, construct triangle ABC with $AB = 9\text{cm}$, angle $ABC = 90^\circ$ and $BC = 6\text{cm}$. Marks will be awarded for construction lines clearly shown.

(4 marks)

- (ii) Measure and state the size of angle $B\hat{A}C$, on the triangle ABC above. (2 marks)

(Total 12 marks)

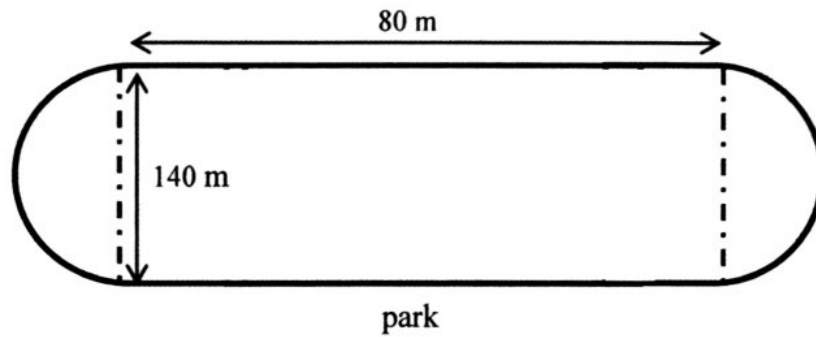
8. (a) In the diagram below, not drawn to scale determine:



- (i) the height of the mast AB. (3 marks)

- (ii) the length of BC to the nearest metre. (3 marks)

- (b) The diagram below, (not drawn to scale) shows a park in the shape of a rectangle with semi-circular ends.



- (i) Calculate the perimeter of the park (use $\pi = \frac{22}{7}$). (2 marks)

- (ii) Express the perimeter of the park in kilometres. (1 mark)

- (iii) If Joshua takes 10 minutes to ride around the track, calculate his speed in kmh^{-1} . (3 marks)

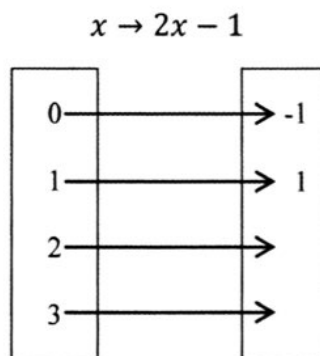
(Total 12 marks)

9. (a) Joanne and Malika went to KFC. Joanne purchased 2 pieces of chicken and 3 portions of fries for \$69.00. Malika purchased 1 piece of chicken and 4 portions of fries for \$72.00.

(i) Using $\$x$ to represent the cost of 1 piece of chicken and $\$y$ to represent the cost of 1 portion of fries. Write down two separate equations involving x and y to represent the information given above. (2 marks)

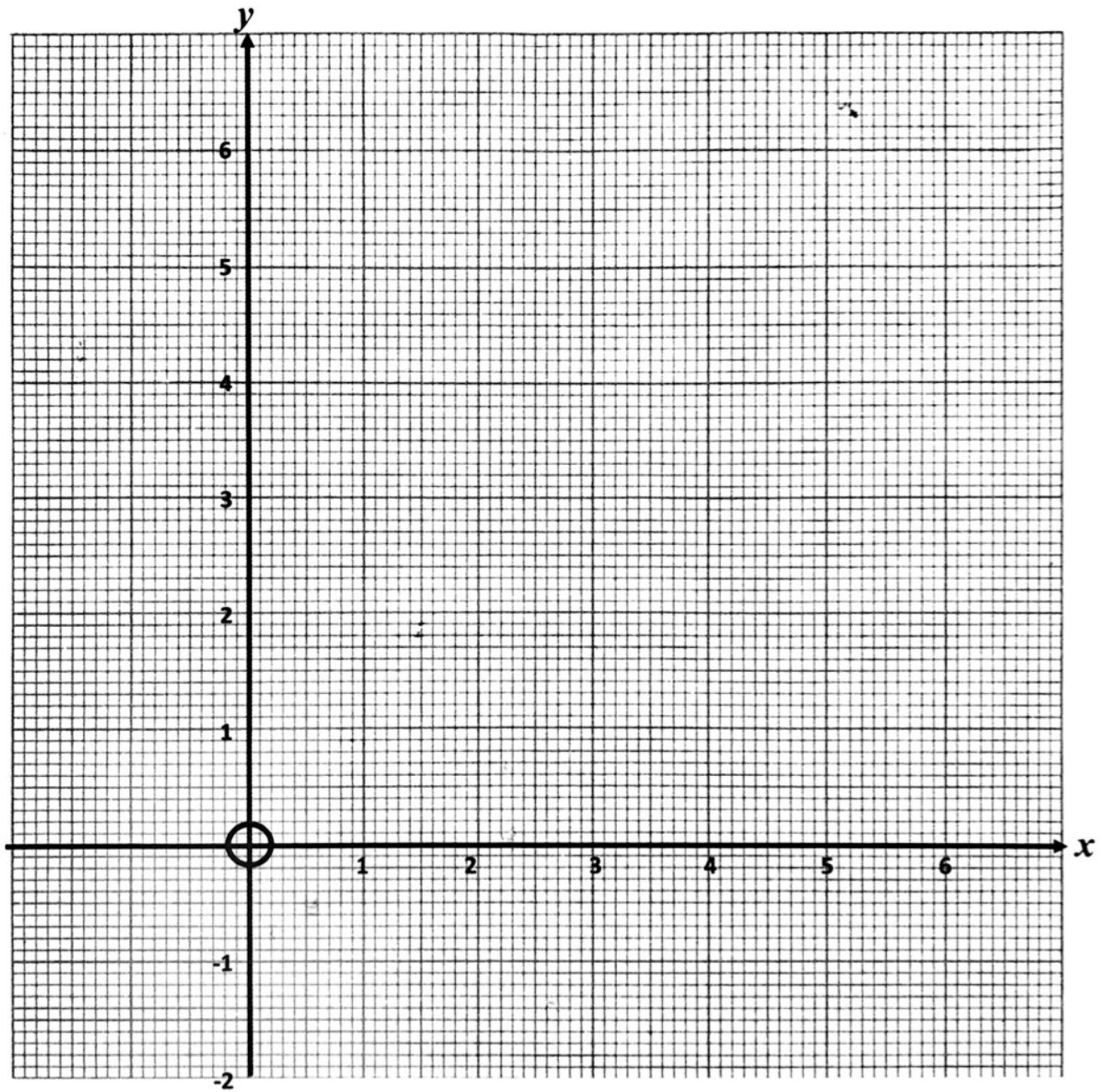
(ii) Using your equations from (a) above, determine the cost of one piece of chicken, and one portion of fries. (4 marks)

- (b) (i) For the relation $f: x \rightarrow 2x - 1$, complete the mapping diagram below. (2 marks)



- (ii) Use the mapping of $x \rightarrow 2x - 1$ to plot the graph of $y = 2x - 1$ on the grid below

(2 marks)



- (iii) On the same axes draw the line parallel to the line $y = 2x - 1$ which passes through the origin.

(2 marks)

(Total 12 marks)

END OF TEST