



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

**NATIONAL CERTIFICATE OF SECONDARY
EDUCATION 2012**

(Level 1)

**MATHEMATICS
PAPER I**

TIME: 90 MINUTES

Student's Name _____

School's Name _____

School's ID

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Student's Number

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INSTRUCTIONS

Read the following instructions carefully:

1. This paper consists of forty (40) Multiple Choice questions.
2. You are required to answer ALL questions.
3. Record your answers on the Multiple Choice answer sheets provided by shading in the selected letter which corresponds to the question.
4. Fill in the following information on the Multiple Choice answer sheet using a 2HB pencil only (if it has not been completed already):
 - School's Name and ID
 - Student's Name
 - Student's Number
 - Date of Birth
5. If you must change your answer, erase your first answer completely, and then shade your new answer.
6. On the answer sheet, **DO NOT**:
 - Write anything on the top and sides
 - Staple
 - Punch holes
 - Bend the corners
 - Tear
 - **Make any stray marks**
7. If you have finished before time is called, go back and check your work.
8. **NO CALCULATORS** are to be used.

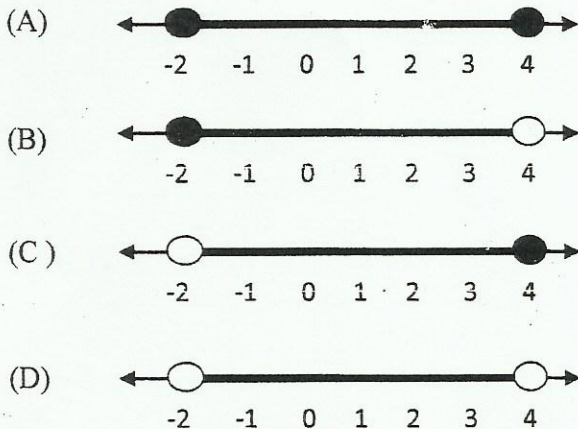
1. The value of the digit 4 in the numeral 7412 is

- (A) 4
- (B) 40
- (C) 400
- (D) 4 000

2. Find the value of $4^2 + 2^2$

- (A) 4
- (B) 8
- (C) 12
- (D) 20

3. Which diagram below best represents the inequality $-2 \leq x \leq 4$



4. If $A = \{1, 3, 5\}$, then the number of possible subsets of set A is

- (A) 3
- (B) 4
- (C) 6
- (D) 8

5. Three sprinklers X, Y and Z are placed on a lawn. Sprinkler X comes on every 3 minutes, Y comes on every 9 minutes, and Z comes on every 15 minutes. If all three sprinklers come on at 1:00 p.m., at what time will they come on together again?

- (A) 1:15 p.m.
- (B) 1:27 p.m.
- (C) 1:30 p.m.
- (D) 1:45 p.m.

6. Which of the following numbers when subtracted from both the numerator and denominator of the fraction $\frac{13}{17}$ will make a new fraction which is equivalent to $\frac{2}{3}$?

- (A) 4
- (B) 5
- (C) 6
- (D) 7

7. Hot peppers are sold at the rates shown in the table below.

COST OF HOT PEPPERS			
Option (I)	Option (II)	Option (III)	Option (IV)
\$0.70 each	\$3.00 for 5	\$6.00 per dozen	\$65.00 per hundred

Which option is the best buy?

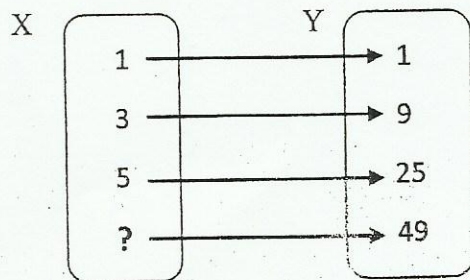
- (A) I
- (B) II
- (C) III
- (D) IV

8. Amy cuts a piece of wire 44 cm long and bends it to make a circle. What is the radius, in cm, of the circle?

- (A) 7
(B) 14
(C) 28
(D) 44

Questions 9 and 10 are based on the information presented on the arrow diagram below.

The diagram below shows a relation between two sets X and Y.



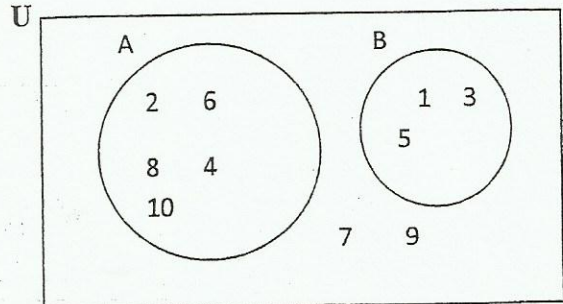
9. What is the value of the missing number in the set X?

- (A) 4
(B) 7
(C) 16
(D) 36

10. The mapping shown in the relation above is

- (A) One- to-one
(B) One- to-many
(C) Many-to- one
(D) Many-to-many

Questions 11, 12 and 13 are based on the information presented in the Venn diagram below.



$$U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$$

$$A = \{2, 4, 6, 8, 10\}$$

$$B = \{1, 3, 5\}$$

11. The set $A \cup B$ is

- (A) $\{1, 3, 5\}$
(B) $\{2, 4, 6, 8, 10\}$
(C) $\{1, 2, 3, 4, 5, 6, 8, 10\}$
(D) $\{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$

12. The complement of set B is

- (A) $\{7, 9\}$
(B) $\{2, 4, 6, 8, 10\}$
(C) $\{2, 4, 6, 7, 8, 9, 10\}$
(D) $\{1, 2, 3, 4, 5, 6, 8, 10\}$

13. The number of elements which does NOT belong to either set A or set B is

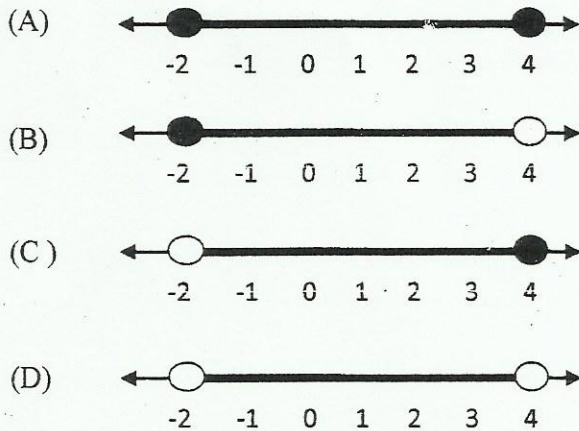
- (A) 0
(B) 2
(C) 3
(D) 5

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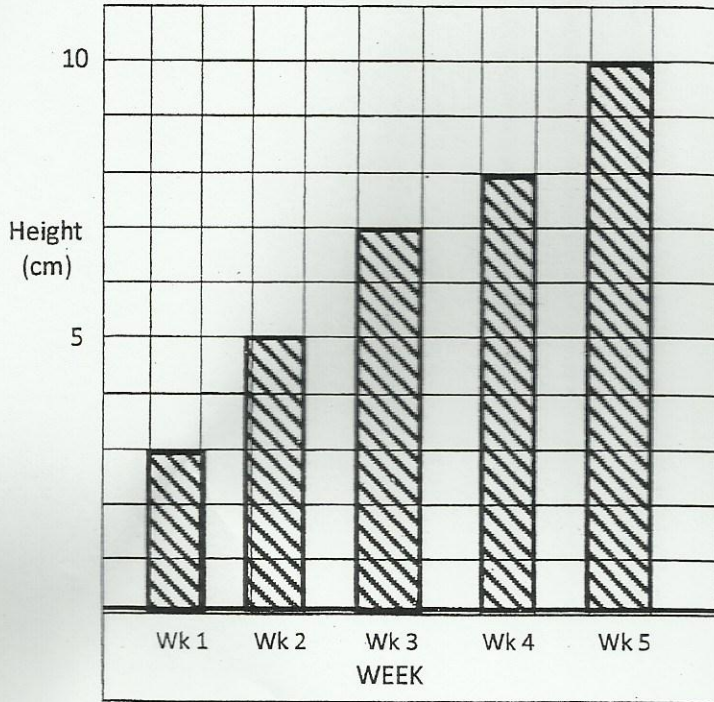
COST OF HOT PEPPERS			
Option (I)	Option (II)	Option (III)	Option (IV)
\$0.70 each	\$3.00 for 5	\$6.00 per dozen	\$65.00 per hundred

Which option is the best buy?

- (A) I
 (B) II
 (C) III
 (D) IV

Questions 14 and 15 are based on the information presented in the Bar Graph shown below.

The Bar Graph shows the height of a plant at the end of each week over a period of 5 weeks.



14. What is the increase in height, in cm, of the plant between week 1 and week 5?

- (A) 3
- (B) 7
- (C) 10
- (D) 32

15. In which week was there the **least** growth of the plant?

- (A) Week 2
- (B) Week 3
- (C) Week 4
- (D) Week 5

16. If $y = 8 - x$, what is the value of y when $x = -2$?

- (A) -10
- (B) -6
- (C) 6
- (D) 10

17. The sum of two numbers is 30 and their difference is 4. The **smaller** number is

- (A) 13
- (B) 14
- (C) 16
- (D) 17

18. A bag contains 15 blue marbles, 20 red marbles and 25 green marbles.

What is the probability that a marble drawn at random is green?

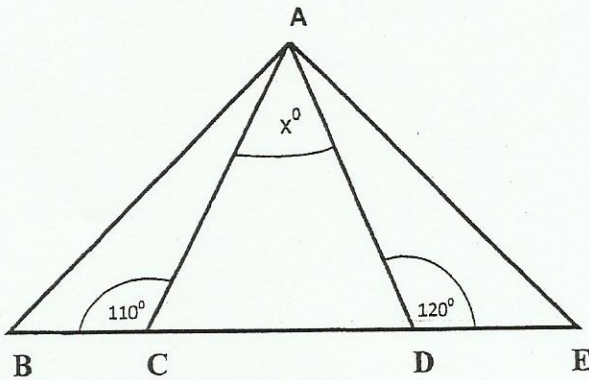
- (A) $\frac{1}{60}$
- (B) $\frac{1}{4}$
- (C) $\frac{1}{3}$
- (D) $\frac{5}{12}$

19. Simplify $3(2a - 1) + 3$

- (A) $6a$
- (B) $6a - 3$
- (C) $6a + 2$
- (D) $6a + 6$

20. In the diagram below, angle $ACB = 110^\circ$,
and angle $ADE = 120^\circ$.

What is the size of angle CAD marked x ?



- (A) 10°
- (B) 50°
- (C) 120°
- (D) 130°

21. What is the volume of a cube with side
4 cm?

- (A) 12
- (B) 16
- (C) 24
- (D) 64

22. Jody's commission as a sale clerk increased
from \$80.00 last year to \$120.00 this year.
What is the percentage increase?

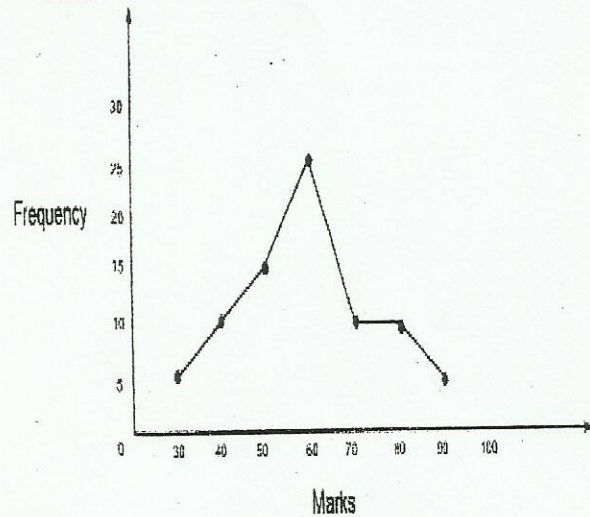
- (A) $33\frac{1}{3}\%$
- (B) 40%
- (C) 50%
- (D) $66\frac{2}{3}\%$

23. Factorize $(c^2 - 25)$

- (A) $(c - 5)(c - 5)$
- (B) $(c + 5)(c - 5)$
- (C) $(c - 25)(c - 25)$
- (D) $(c + 25)(c - 25)$

Questions 24 and 25 are based on the Line
Graph shown below.

The Line Graph represents the distribution of
marks obtained by the students in a Reading
test.



24. How many students did the Reading test?

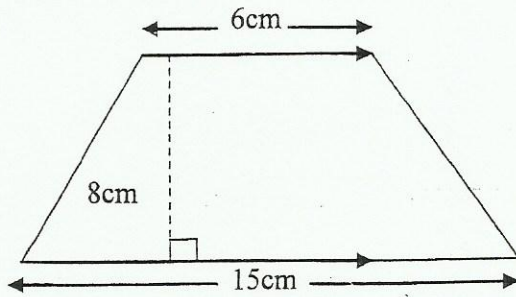
- (A) 25
- (B) 60
- (C) 80
- (D) 90

25. How many students scored below 50 marks
in the Reading test?

- (A) 5
- (B) 10
- (C) 15
- (D) 65

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26. What is the area, in cm^2 , of the trapezium shown in the diagram below?



- (A) 60
 (B) 84
 (C) 120
 (D) 168
27. During an Easter sale at Indra's Bridal Shop, there is a discount of 10% on all purchases. How much will Nicole pay for a bridal gown which was originally priced at \$8 000.00?
- (A) \$ 800.00
 (B) \$1600.00
 (C) \$6400.00
 (D) \$7200.00
28. The diameter of the base of an orange juice can is 7cm and the height is 16cm. If a full can of juice is poured out equally into 8 glasses, what volume, in cm^3 , of juice is contained in each glass?
- (A) 44
 (B) 77
 (C) 88
 (D) 308

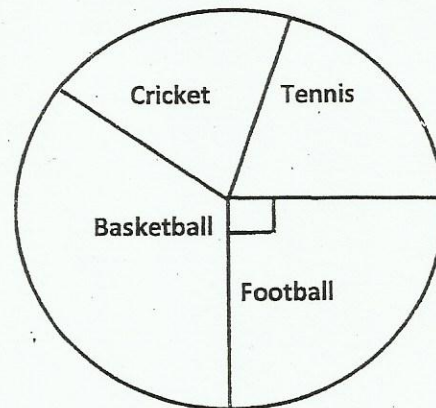
29. A pentagon has interior angles of 104° , 108° and 112° . If the remaining two angles are equal, what is their size in degrees?

- (A) 108
 (B) 112
 (C) 216
 (D) 3240

30. The values of x and y which best satisfy both the equations $y = x + 1$ and $y = 3 - x$ are

- (A) $x = -1$ and $y = 0$
 (B) $x = 0$ and $y = 3$
 (C) $x = 1$ and $y = 2$
 (D) $x = 2$ and $y = 1$

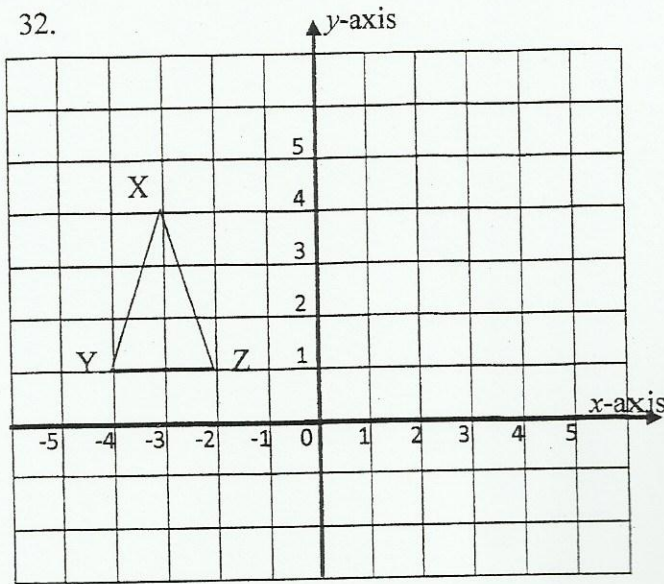
31. The pie chart below illustrates the sports preferred by a group of Form Three students at Breadnut High School.



What percentage of students prefer football?

- (A) 20
 (B) 25
 (C) 50
 (D) 90

32.

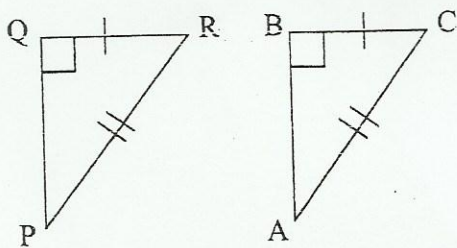


The triangle XYZ undergoes a translation of 5 units to the right and 2 units vertically upwards.

The image of point Y under the translation is

- (A) (1, 3)
- (B) (3, 1)
- (C) (3, 3)
- (D) (3, 6)

33. Which condition best describes the condition for congruency in triangle PQR and triangle ABC shown below?



- (A) Right angle, hypotenuse and side
- (B) Two sides and the included angle
- (C) Two angles and a side
- (D) Three sides

34. How many millimeters are there in 15 metres?

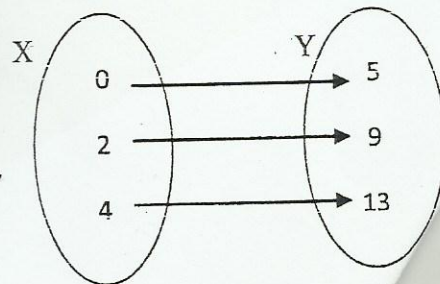
- (A) 15
- (B) 150
- (C) 1 500
- (D) 15 000

35. Randy rides to school on his bicycle at an average speed of 8 km per hour. His school is 4 km from home and classes start at 8:00 a.m.

What is the **latest** time that he could leave home to reach to school on time?

- (A) 7:00 a.m.
- (B) 7:30 a.m.
- (C) 8:00 a.m.
- (D) 8:30 a.m.

36. Which equation represents the relationship shown on the arrow diagram below?



- (A) $y = x + 5$
- (B) $y = 2x + 3$
- (C) $y = 2x + 5$
- (D) $y = 3x + 3$

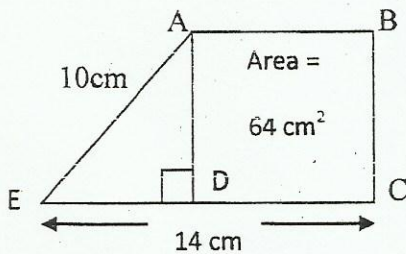
37. A car travels 220 km using 34 litres of gasoline. How far, in km, will the same car travel if it uses 85 litres of gasoline?

- (A) 88
- (B) 112
- (C) 440
- (D) 550

38. The gradient of the straight line which passes through the points (2, 5) and (1, 2) is

- (A) -3
- (B) -1
- (C) 1
- (D) 3

39. In the figure below, ABCD is a square of area 64 cm^2 , $AE = 10 \text{ cm}$ and $EC = 14 \text{ cm}$.



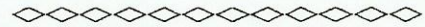
The perimeter, in cm, of the composite figure ABCDE is

- (A) 40
- (B) 48
- (C) 56
- (D) 72

40. Don scored x goals in a football match. Ken scored 3 goals less than Don.

If together they scored less than 7 goals, which of the following inequalities most accurately represents this information?

- (A) $2x - 3 < 7$
- (B) $2x + 3 < 7$
- (C) $2x - 3 \leq 7$
- (D) $2x + 3 \leq 7$



END OF TEST