

MATHEMATICS

GUYANA DEFENCE FORCE

ACADEMIC EDUCATION PROGRAMME

MATHEMATICS

LEVEL 5 PROMOTIONAL EXAMINATION

**Instruction: This Paper has 22 pages and 100 questions. Use the blank sheets provided to do any calculation. The use of the calculator is permitted.**

**ANSWER ALL QUESTIONS**

Circle the **Letter** which is next to your choice.

**One** mark for each correct answer.

1)  $93.89 \times 0.05$ , correct to 3 decimal places is-----

a. 4.695

b. 4.694

c. 46.940

d. 0.469

2)  $(0.7)^3 - (0.3)^3 =$

a. 3.16

b. 31.6

c. 0.316

d. 316

MATHEMATICS

3) \$325 is divided among 3 friends in the ratio 3: 5 : 7. How much is the largest share?

- a. \$15.67
- b. \$151.67
- c. \$1.56
- d. \$65.00

4. If the probability of a child getting measles is 0.18, how many children out of 1100 may be expected to get measles?

- a. 100
- b. 120
- c. 130
- d. 198

5) If  $13x - 8 = 4x + 7$ , then  $x =$

- a.  $15/9$
- b.  $1/9$
- c.  $15/17$
- d.  $1/17$

6) When two parallel lines are cut by a third straight line, which entries are **Not True**?

- i. alternate angles are supplementary
- ii. corresponding angles are equal
- iii. co-interior angles are supplementary
- iv. vertically opposite angles are complementary

a. i and ii only

b. ii and iii only

c. iii and iv only

d. i and iv only

7) Under translation T, the image of (2,3) is (5,7). What is the image of (-4,2) under T?

a. (1,6)

b. (-1,6)

c. (0,5)

d. (-7,6)

8) If  $Z = (a, b, c, d)$ , which of the following is **not** a subset of Z?

a. (a, b)

b. (a, e)

c. (c, d)

d. (a, b, c, d)

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9) Given  $F: \overrightarrow{2x - 5}$  and  $G: \overrightarrow{3x + 1}$ , then  $FG: \overrightarrow{x}$

- a.  $(2x - 5)(3x + 1)$
- b.  $(2x - 5) + (3x + 1)$
- c.  $(2x - 5) - (3x + 3)$
- d.  $(2x - 5) / (3x + 1)$

10) The L.C.M of 16 and 20 is-----.

- a. 2
- b. 4
- c. 80
- d. 320

11) In a division problem, a pupil divided by 26 instead of 39 and got an answer 201.  
What is the correct answer had he divided by 39?

- a. 266
- b. 240
- c. 136
- d. 134

MATHEMATICS

12) A man starts a journey of 460 kilometers at 08:00 hours and reaches his destination at 13:00 hours. What is his average speed for the journey in kilometers per hour?

- a. 92
- b. 60
- c. 45
- d. 30

13)

Year	1975	1990	2005
Population	1500	3000	6000

Table 1

The above table (table 1) shows the population of a town at fifteen-year periods from 1975 to 2005. If the increase continues at the same rate, the population in the year 2020 should be -----.

- a. 12000
- b. 15000
- c. 17000
- d. 18000

MATHEMATICS

14) The average attendance of a class for 5 days is 40. If the attendance for 4 days was 40, 39, 38, and 42. What was the attendance on the fifth day?

- a. 41
- b. 39
- c. 42
- d. 38

15) An increase of 10% gave a worker a salary of \$660. What salary will an increase of 20% give?

- a. \$1100
- b. \$825
- c. \$792
- d. \$720

16) Each of the letters of the word 'GEORGETOWN' is written on separate pieces of paper. The pieces of paper are then placed in a bag. What is the probability of drawing the letter 'E'?

- a.  $\frac{1}{10}$
- b.  $\frac{1}{5}$
- c.  $\frac{1}{2}$
- d.  $\frac{2}{8}$

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17) The sum of \$6500 was borrowed from a bank at a rate of 8% per annum for 3 years. The simple interest payable is-----.

- a. \$16200
- b. \$1560
- c. \$1620
- d. \$1800

18) A car travels 180 kilometers on 8 litres of petrol. How far is it likely to travel with 35.5 litres of petrol?

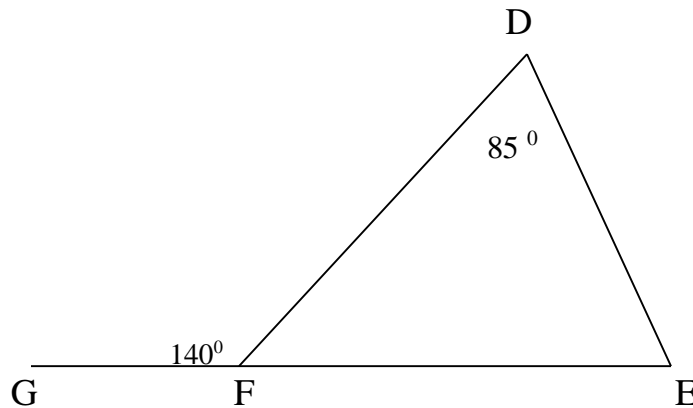
- a. 79875 km
- b. 7.9875km
- c. 798.75 km
- d. 79.875 km

19) The **mean** of seven numbers is 13.5. The number 8 is added to the set. The new **mean** is – (corrected to 3 decimal places)

- a. 12.812
- b. 12.813
- c. 1.281
- d. 12813

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20) In the diagram below the angle DFE =



- a.  $40^\circ$
- b.  $60^\circ$
- c.  $55^\circ$
- d.  $95^\circ$

21) The height of a tower is 100m. The tower is represented on a scaled drawing by a length of 5cm. What is the scale used was-----.

- a. 1:2000
- b. 1:20000
- c. 1: 200000
- d. 1: 2000000



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22)  $(2x^3)^4$  expressed in the form  $ax^n$  is -----.

a.  $8x^{12}$

b.  $8x^7$

c.  $16x^7$

d.  $16x^{12}$

23)  $6/x - 3/2x$  expressed as a single fraction (in its lowest terms) is-----.

a.  $3/x$

b.  $9/2x$

c.  $3/2x^2$

d.  $9x/2x^2$

24)  $x^2 - 3x - b = 0$  when  $x = 2$ . What is the value of **b**?

a. 2

b. -2

c. 4

d. -3

25) Which pair  $(x, y)$  satisfies  $2x - y = 5$  and  $x + y = 4$

- a. (1,3)
- b. (-3,4)
- c. (4, -3)
- d. (3, 1)

26) The Sine of  $65^\circ$  is ----- . (correct to 3 decimal places)

- a. 0.906
- b. 0.907
- c. 0.910
- d. 0.913

27) The matrix  $C = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$  is called ----- matrix.

- a. null
- b. square
- c. diagonal
- d. column

28) In the equation  $5 = 25$ , “ ” is equal to----.

- a. 25
- b. 2
- c. 3
- d. 5

29) The length of arc of a circle of diameter 10 cm and sector angle of  $120^\circ$  is---.

- a. 1047 cm
- b. 10.47 cm
- c. 1.047 cm
- d. 104.7 cm

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30)

Number of points	0	1	2	3	4	5	6	7	8	9	10
Frequency	4	4	5	0	5	6	7	4	0	3	6

The table above shows the points gained by teams participating in a soccer competition. The MEAN score is-----.

- a. 221
- b. 2.21
- c. 22.1
- d. 22

31) 48 is the lowest common multiple of

- a. (2, 3, 16 and 5)
- b (3, 4, 6 and 12)
- c. (6, 12, 3 and 18)
- d. (9, 12, 24 and 14)

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32) The exact value of  $5^3$  is----.

- a. 625
- b. 25
- c. 125
- d. 525

33) On the face of a clock, the long hand is at 7 and the short hand is at 10. What is the value of the reflex angle?

- a.  $300^{\circ}$
- b.  $275^{\circ}$
- c.  $270^{\circ}$
- d.  $179^{\circ}$

34) How many tiles, 100 cm by 100 cm, will be required to cover an area of  $312.5\text{m}^2$ ?

- a. 312
- b. 313
- c. 31
- d. 32

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35) What is the area of the triangle XYZ if angle YXZ =  $90^\circ$ , XY = 7 cm and XZ = 9 cm? (correct to 1 decimal places)

- a.  $31.5 \text{ cm}^2$
- b.  $315 \text{ cm}^2$
- c. 31.5 cm
- d. 315 cm

36) The value of  $0.3^3$  is-----.

- a. 0.009
- b. 0.09
- c. 0.27
- d. 0.027

37) The perimeter of a rectangle is 80 cm. If the ratio of the width to the length is 3:5, then the width is -----.

- a. 15
- b. 25
- c. 30
- d. 28

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38) Given  $F(x) = (x + 2)/(2x - 4)$ , What is  $F^{-1}(x)$ ?

a.  $(x + 2)/(2x - 4)$

b.  $(2x - 4)/(x + 2)$

c.  $(2 + x)/(4 - 2x)$

d.  $(2x + 6)/(x - 4)$

39) Which number **CANNOT** represent the probability of an event?

a. 1

b. 0.01

c.  $1/5$

d. 2.5

40)  $4^x \times 4^y =$

a.  $16xy$

b.  $4xy$

c.  $4^{x+y}$

d.  $16^{x+y}$

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41) The simple interest on \$7500, invested for 3 years at 6.5% per annum, is---

- a.  $\$7500 \times 6.5 \times 3 / 100$
- b.  $\$7500 \times 6.5 / 3 \times 100$
- c.  $\$7500 \times 3 / 6.5 \times 100$
- d.  $100 \times 6.5 / \$7500 \times 4$

42) If Set A = {1,2,3,4,5,6 } and Set B= { 3,5,7,8 } we can say that

- a. set A intersect set B
- b. set A and set B are unequal
- c. set A and set B are empty sets
- d. set A and set B are equivalent

43) The formula  $A = \theta / 360^\circ \times r^2$  is used to find

- a. Area of a parallelogram
- b. Area of a cone
- c. Area of a minor sector
- d. Area of a prism



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44) The exchange rate of \$GUY to \$US is \$GUY 199.95 to \$US 1.00. If a tourist changes \$US 500 for \$GUY, how much dollars will she get?

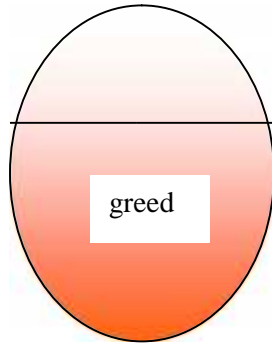
- a. \$999.75
- b. \$99.975
- c. \$99,975
- d. \$999.55

45) The symbol used to indicate a **Union of Set** is-----.

- a. U
- b.  $\subset$
- c.
- d.  $\in$

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46) On the chart below the part marked “ greed” is called a



- a. sector
- b. section
- c. minor segment
- d. major segment

47)  $\frac{4/5 \times 10/12}{5/6}$  ( written in its lowest terms) is----.

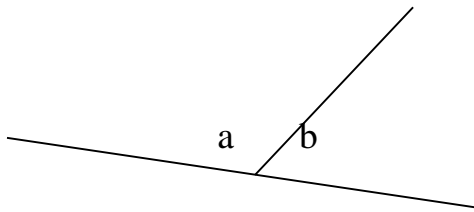
- a. 5/4
- b. 8/10
- c. 48/60
- d. 4/5

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48) A pair of shoes is priced at \$12,000 and attracts an 8% VAT. What is the cost of the pair of shoes?

- a. \$11,040
- b. \$12,960
- c. \$12,906
- d. \$11,400

49)



In the above diagram the angles marked **a** and **b** are ---- angles

- a. supplementary
- b. complementary
- c. equal
- d. reflex

50)  $y = 3$  is a \_\_\_\_\_ line drawn on the co-ordinate plane.

- a. diagonal
- b. vertical
- c. horizontal
- d. oblique

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51) The point A ( -1,3) undergoes a translation (3,-6). The coordinates of A' are

- a. (-3,2)
- b. (4, 9)
- c. ( 4, -3)
- d. (2, -3)

52) A car dealer bought a car. He then sold it for \$1,000,000, incurring a loss of \$110,000. His loss expressed as a percentage is-----.

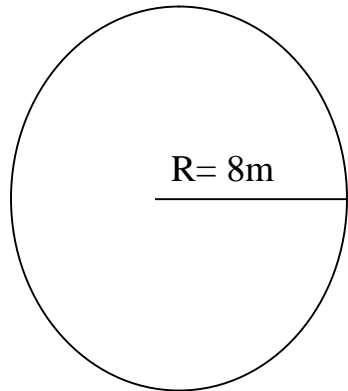
- a. 1.1%
- b. 11%
- c. 0.011%
- d. 1%

53) Which of the following are **TRUE** about reflection? It preserves

(i) betweenness (ii) distance (iii) angles (iv) brightness

- a. (iv) only
- b. (i) only
- c. (i), (ii) only
- d. (i),(ii),(iii) only

54)



The **circumference** of the diagram above is-----.

- a. 50.24 cm
- b. 5.024cm
- c. 5.024cm<sup>2</sup>
- d. 50.24cm<sup>2</sup>

55) 1.5 kilograms equal ---- grams.

- a. 1500g
- b. 150g
- c. 1.50g
- d. 0.15g

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56) A piece of machinery purchased in 2000 for \$1000,000 has depreciated at the rate of 5% per year. What was the value at the end of 2003?

- a. \$85,737
- b. \$85.737
- c. \$ 857.37
- d. \$857,375

57) What is the value of 'y' in the equation,  $y^2 + 8y + 16 = 0$ ?

- a. 4
- b - 4
- c. 0.4
- d. - 0.4

58) The factors of  $2y^2 - 19y + 24$  are

- a.  $(2y + 3)(y + 8)$
- b.  $(2y - 3)(y - 8)$
- c.  $(y + 8)(2y + 3)$
- d.  $(y + 8)(2y - 3)$

59) Rose is **eight** times as old as Loraine who is  $x$  years old. Seven (7) years from now their ages will respectively be -

i.  $8x + 7$

ii.  $8/x + 7$

iii.  $x + 7$

iv.  $x/7$

a. i and ii

b. i and iii

c. ii and iii

d. ii and iv

60) If  $x$  and  $y$  are both integers, then  $2(x + y)^3$  means

a. two times the sum of their cube

b. six times their sum

c. the cube root of two times their sum

d. the cube of two times their sum

61) Determine the **exact** value of

$$\frac{2\frac{1}{2} - 1\frac{2}{5}}{4\frac{2}{5} \times \frac{3}{4}}$$

a.  $1/3$

b.  $3/4$

c.  $2/5$

d.  $7/8$

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62) Determine the **exact** value of

$$2.5^2 - \frac{2.89}{13}$$

a. 8

b. 10

c. 12

d. 6

63) Miss. Sam bought 125 shirts for \$3500. How much did she pay for **one** shirt?

a. \$24

b. \$30

c. \$28

d. \$35

64) Miss. Sam bought 125 shirts for \$3500. If Miss. Sam sold each shirt for \$40, how much money did she receive after selling **all** the shirts?

a. \$9000

b. \$5000

c. \$1500

d. \$3125



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65) Miss. Sam bought 125 shirts for \$3500. She sold each shirt for \$40. What was her total profit after selling **all** the shirts?

- a. \$1500
- b. \$1000
- c. \$1300
- d. \$1400

66) Miss. Sam bought 125 shirts for \$3500. She sold each shirt for \$40. Express her profit as a percentage of the cost price (giving your answer correct to the nearest whole number).

- a. 38%
- b. 40%
- c. 43%
- d. 36%

67) Simplify  $(64x^{-6})^{2/3}$

- a.  $1/64x^4$
- b.  $1/64x^{-4}$
- c.  $64x^4$
- d.  $64x^{-4}$

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68) Factorize completely  $6x^2 + 2x - 28$

a.  $(4x+3)(2x+4)$

b.  $(3x+2)(2x + 3)$

c.  $(2x - 4)(3x + 7)$

d.  $(7x + 3)(2x + 5)$

69) Factorize completely  $x^2 - 2x$

a.  $x(x^2 - x)$

b.  $2x(x-2x)$

c.  $x^2(2x+2)$

d.  $x(x - 2)$

70) Simplify  $(x^2 + 3x - 28)/(x^2 - 4x)$

a. 7

b.  $x + 7/x$

c.  $x - 7/x$

d. -7

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71) Given that  $p = 4$ , and  $q = -2$ , calculate the value of  $3p^2q + q^3$

- a. 104
- b. -104
- c. -112
- d. 112

72) Charges for electricity in a certain Caricom country are made up of a fixed fuel charge of 15 cents per unit and an energy charge computed under **three** Schemes as follows:

- Scheme A. Homes                      30 cents per unit
- Scheme B. Schools                    25 cents per unit
- Scheme C. Schools                    35 cents per unit

The meter reading of a **home** reads as follows:

Meter reading(units)		Units used	Scheme	Energy Charge (\$)	Fuel Charge (\$)
Present	Previous				
21439	19534		C		

The number of units used is -----.

- a. 1905
- b. 1300
- c. 1850
- d. 1525

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73. Charges for electricity in a certain Caricom country are made up of a fixed fuel charge of 15 cents per unit and an energy charge computed under **three** Schemes as follows:

- Scheme A. Homes                      30 cents per unit
- Scheme B. Schools                    25 cents per unit
- Scheme C. Schools                    35 cents per unit

The meter reading of a **home** reads as follows:

Meter reading(units)		Units used	Scheme	Energy Charge (\$)	Fuel Charge (\$)
Present	Previous				
21439	19534		C		

What is the energy charge?

- a. 50128
- b. 55212
- c. 57150
- d. 53118

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74) Charges for electricity in a certain Caricom country are made up of a fixed fuel charge of 15 cents per unit and an energy charge computed under **three** Schemes as follows:

- Scheme A. Homes                      30 cents per unit
- Scheme B. Schools                    25 cents per unit
- Scheme C. Schools                    35 cents per unit

The meter reading of a **home** reads as follows:

Meter reading(units)		Units used	Scheme	Energy Charge (\$)	Fuel Charge (\$)
Present	Previous				
21439	19534		C		

What is the fuel charge?

- a. 28575
- b. 25674
- c. 22873
- d. 27326

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75) Charges for electricity in a certain Caricom country are made up of a fixed fuel charge of 15 cents per unit and an energy charge computed under **three** Schemes as follows:

- Scheme A. Homes                      30 cents per unit
- Scheme B. Schools                    25 cents per unit
- Scheme C. Schools                    35 cents per unit

The meter reading of a **home** reads as follows:

Meter reading(units)		Units used	Scheme	Energy Charge (\$)	Fuel Charge (\$)
Present	Previous				
21439	19534		C		

What is the amount the home owner had to pay for the electricity used?

- a. \$82,123
- b. \$85,725
- c. \$80,412
- d. \$88.569

76) A salesman is paid a salary of \$4200 per month and a commission of 10% on all sales above \$4000. Calculate the salesman's gross salary if his sales for a particular month was \$20,500.

- a. \$5,550
- b. \$5,850
- c. \$5,340
- d. \$5, 675

MATHEMATICS

77) A salesman is paid a salary of \$4200 per month and a commission of 10% on all sales above \$4000. What was the value of his sales for October, when his gross salary was \$5800?

- a. \$1,480
- b. \$1600
- c. \$1,825
- d. \$1,234

78) A salesman is paid a salary of \$4200 per month and a commission of 10% on all sales above \$4000. If his sale for January was \$4,800, state his gross salary.

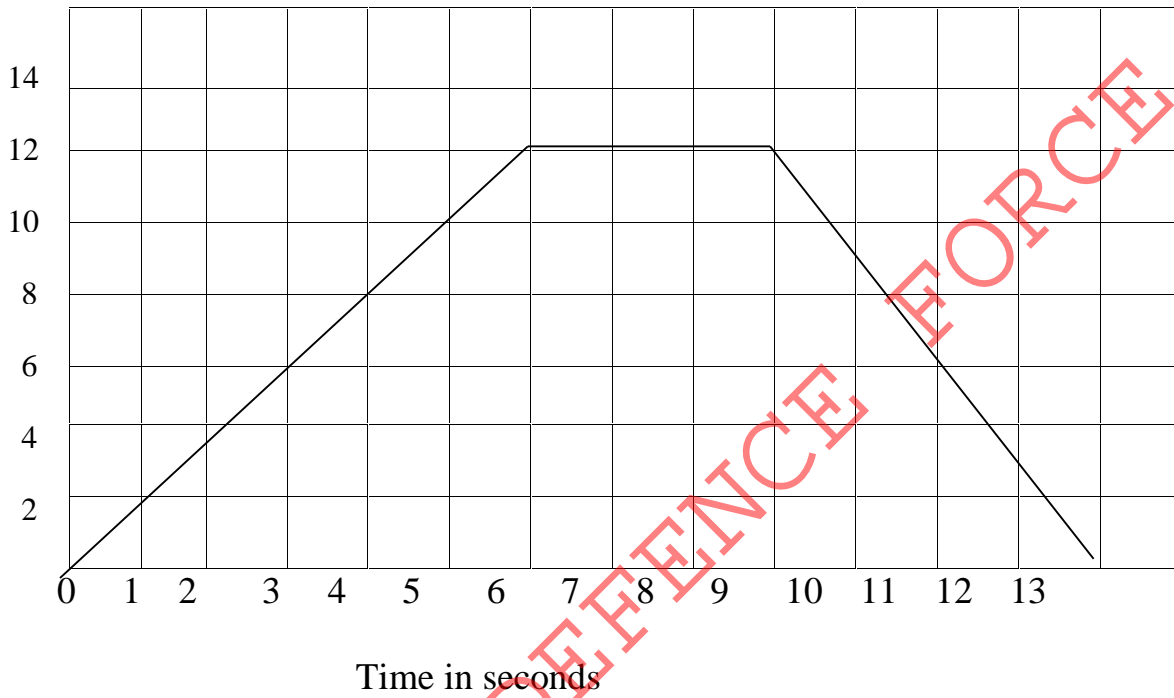
- a. \$4,480
- b. \$4,280
- c. \$4,520
- d. \$4,000

79) A saleswoman sold 25 Mathematics books and 10 English Language books for a total of \$775. If she had sold 10 Mathematics books and 40 English Language books, she would have received \$75 more. Calculate the price of EACH type of book.

- a. Mathematics books \$15, English Language books \$25
- b. Mathematics books \$18, English Language books \$26
- c. Mathematics books \$25, English Language books \$15
- d. Mathematics books \$28, English Language books \$12

80) The diagram below shows the speed-time graph of the motion of a cyclist during a race.

Speed  
in m/s



What is the maximum speed of the cyclist?

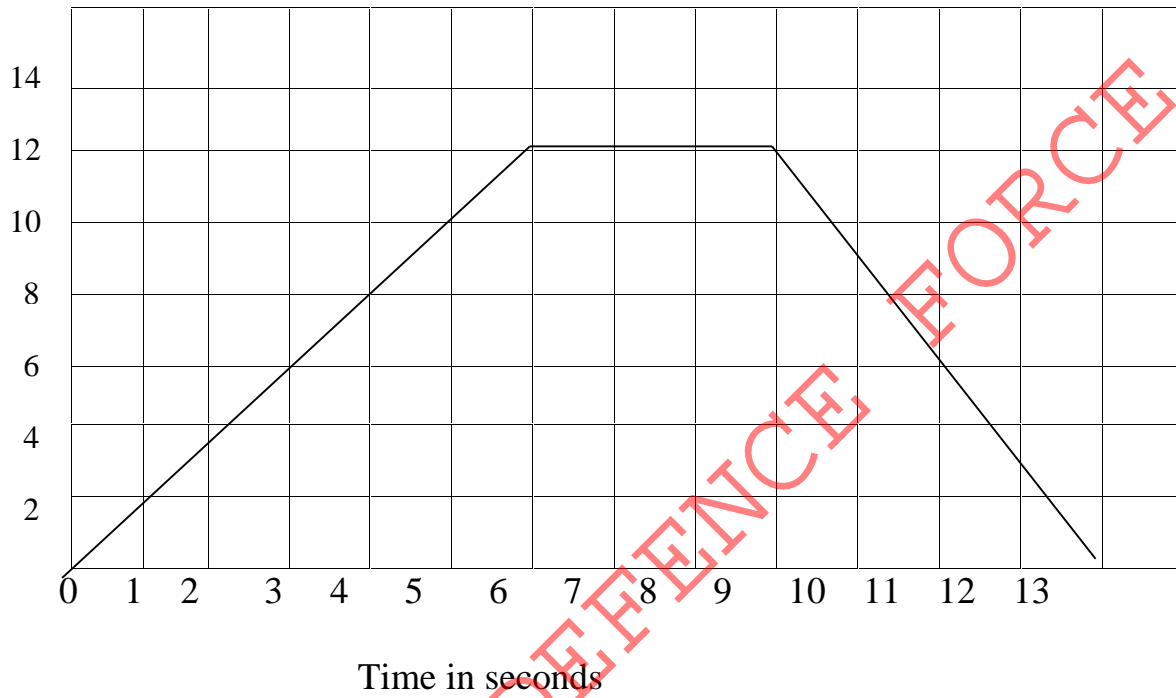
- a. 12m/s
- b. 14m/s
- c. 16m/s
- d. 10m/s



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81) The diagram below shows the speed-time graph of the motion of a cyclist during a race.

Speed  
in m/s



For how many seconds was the speed of the motor cyclist constant?

- a. 3 sec
- b. 4 sec
- c. 5 sec
- d. 6 sec

82) The diagram below shows the speed-time graph of the motion of a cyclist during a race.



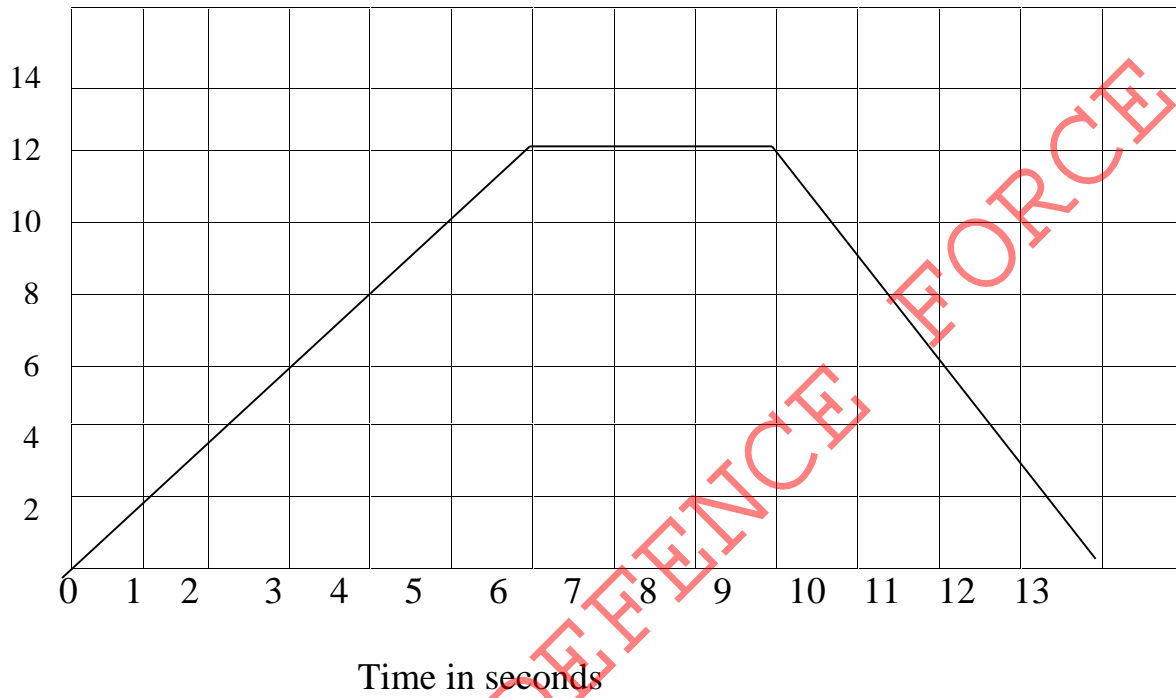
What was the total distance covered by the motor cyclist during the race?

- a. 90 m
- b. 98 m
- c. 92 m
- d. 96 m

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83) The diagram below shows the speed-time graph of the motion of a cyclist during a race.

Speed  
in m/s

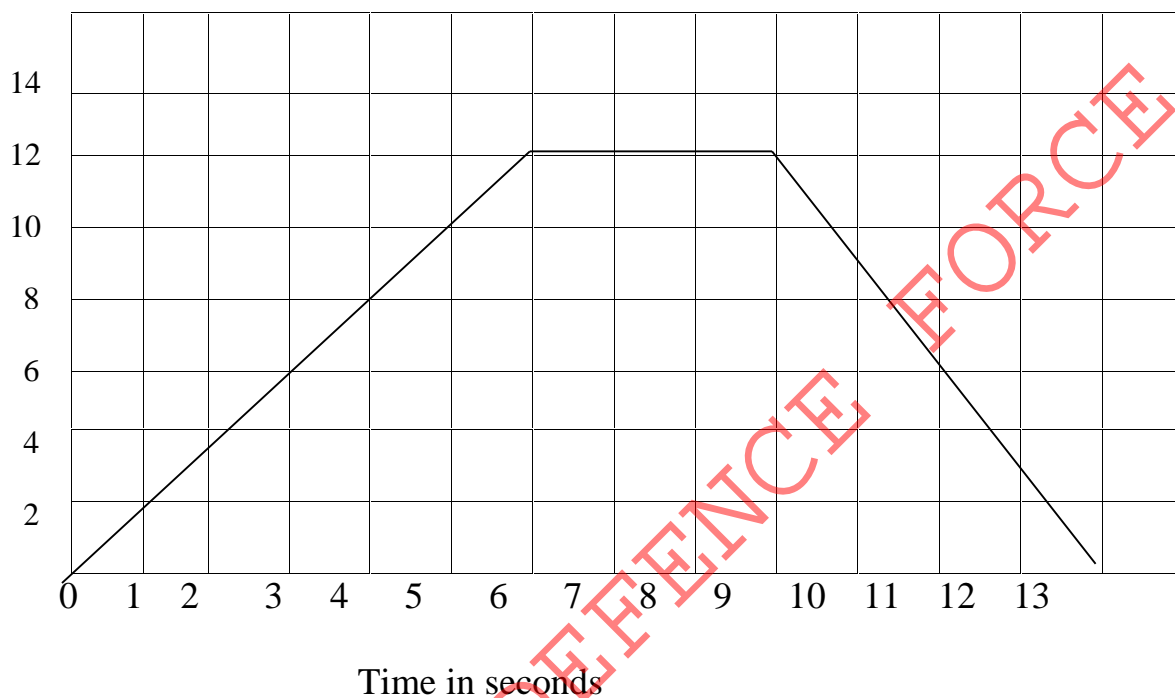


During which time - period of the race was the speed of the motor cyclist increasing?

- a. 0 – 6 sec
- b. 4 – 6 sec
- c. 0 – 13 sec
- d. 5 – 10 sec

84) The diagram below shows the speed-time graph of the motion of a cyclist during a race.

Speed  
in m/s

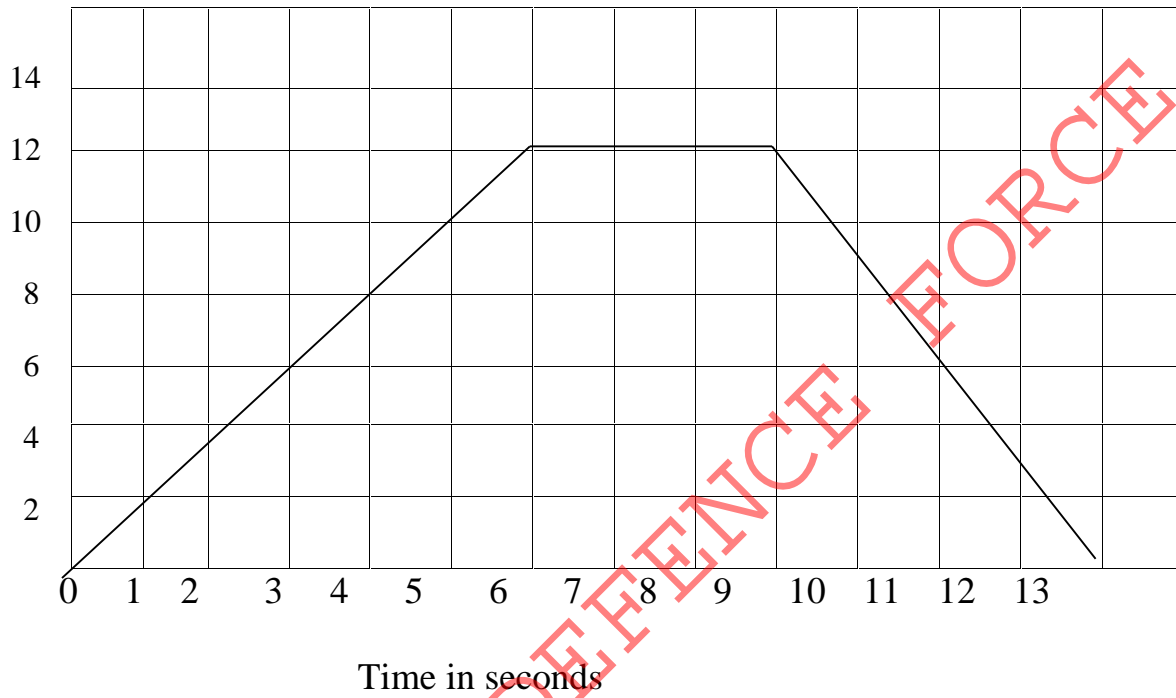


During which time - period of the race was the speed of the motor cyclist decreasing?

- a. 6 – 9 sec
- b. 9 – 13 sec
- c. 4 – 10 sec
- d. 0 – 13 sec

85) The diagram below shows the speed-time graph of the motion of a cyclist during a race.

Speed  
in m/s



During which time – period was the acceleration of the motor cyclist at zero?

- a. 0 – 9 sec
- b. 5 – 10 sec
- c. 6 – 9 sec
- d. 12 – 0 sec

86) Solve the simultaneous equation

$$2x + y = 7$$

$$x - y = 1$$

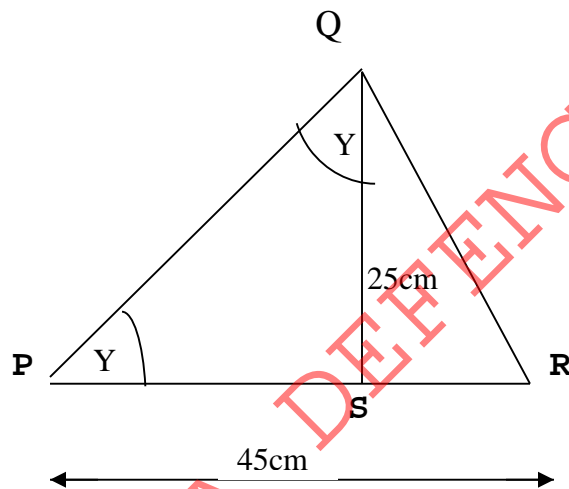
a.  $x = 4, y = 2$

b.  $x = 2, y = 1$

c.  $x = 3, y = 4$

d.  $x = 3, y = 1$

87)



**In the triangle PQR (not drawn to scale)  $PR = 45$  cm.  $QS$  is perpendicular to  $PR$ ,  $QS = 25$  cm and angle  $QPS = SQP$ .**

The length of  $PS$  is -----.

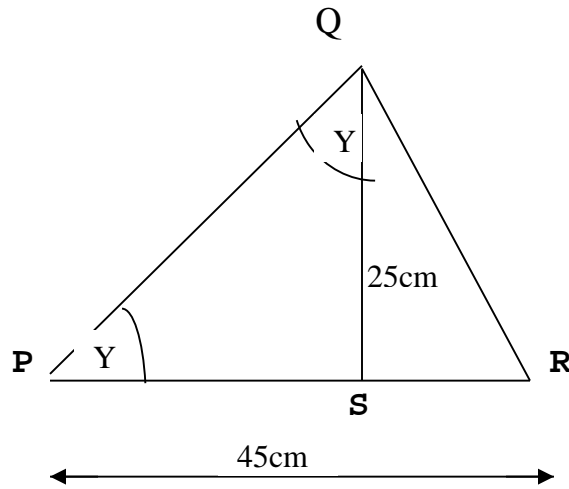
a. 25 cm

b. 45 cm

c. 35 cm

d. 15 cm

88)



**In the triangle PQR (not drawn to scale)  $PR = 45$  cm.  $QS$  is perpendicular to  $PR$ ,  $QS = 25$  cm and angle  $QPS = SQP$ .**

What is the length of  $QR$ ?

- a. 45 cm
- b. 20 cm
- c. 32 cm
- d. 25 cm

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89) A and B two 2 x 2 matrices such that

$$A = \begin{pmatrix} 2 & 3 \\ 3 & 5 \end{pmatrix} \text{ and } B = \begin{pmatrix} 5 & -3 \\ -3 & 2 \end{pmatrix}$$

AB is equal to

a.  $\begin{pmatrix} 19 & 12 \\ 30 & 19 \end{pmatrix}$

b.  $\begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}$

c.  $\begin{pmatrix} 12 & 19 \\ 19 & 30 \end{pmatrix}$

d.  $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$

GUYANA DEFENCE FORCE



90)  $B^{-1}$ , the inverse of B is-----.

a.  $\begin{pmatrix} -5 & -3 \\ -3 & -2 \end{pmatrix}$

b.  $\begin{pmatrix} 2 & 3 \\ 3 & 5 \end{pmatrix}$

c.  $\begin{pmatrix} -2 & -3 \\ -3 & -5 \end{pmatrix}$

d.  $\begin{pmatrix} 5 & 3 \\ 3 & 2 \end{pmatrix}$

91) Given that  $P = \begin{pmatrix} 5 & 1 \\ -3 & -9 \end{pmatrix}$  and  $Q = \begin{pmatrix} -5 & 3 \\ 4 & x \end{pmatrix}$  What is the value of x?

a. -9

b. 12

c. 9

d. -12

92)  $2a + 6a =$

a.  $12a$

b.  $12a^2$

c.  $8a$

d.  $8a^2$

MATHEMATICS

93) If  $m$ ,  $a$  and  $c$  are constants, then equation of a straight line may be written as-----.

a.  $y = mx + c$

b.  $y = c/x$

c.  $x^2 + y^2 = a^2$

d.  $y^2 = 4ax$

94) Seven times the product of two numbers  $a$  and  $b$ , may be written as-----.

a.  $7ab$

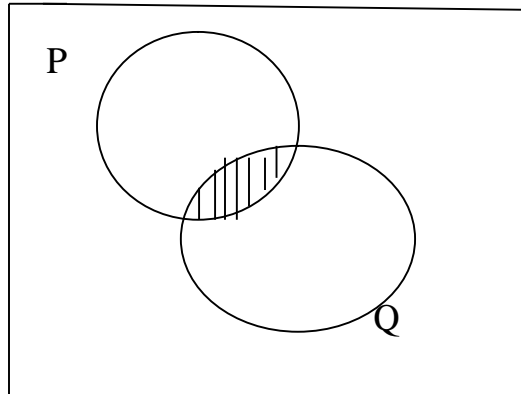
b.  $7a + b$

c.  $7a + 7b$

d.  $49 ab$

GUYANA DEFENCE FORCE

95)

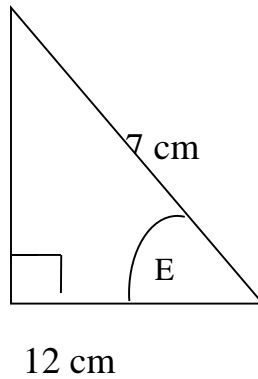


In the Venn diagram above the shaded portion represents

- a.  $P \cup Q$
- b.  $P \cup Q'$
- c.  $P' \cap Q$
- d.  $P \cap Q$

GUYANA DEFENCE FORCE

96)

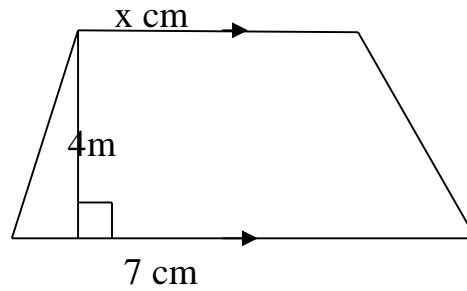


In the diagram above which of the following is true?

- a.  $\sin E = 12/17$
- b.  $\cos E = 12/17$
- c.  $\sin E = 17/12$
- d.  $\tan E = 17/12$

GUYANA DEFENCE FORCE

97)



The area of the trapezium above is  $22 \text{ cm}^2$ . What is the value of  $x$ ?

- a. 3
- b.  $3 \frac{1}{7}$
- c. 4
- d.  $5\frac{1}{2}$

98) The water authority has a fixed charge of \$10.00 per month, \$2.50 for the first 1000 litres, and \$0.10 for each additional 100 litres. What is the total bill for 2500 litres used in one month.

- a. \$4.00
- b. \$12.70
- c. \$14.00
- d. \$14.90

MATHEMATICS

99)  $(0.1 + 0.01)(0.1 - 0.01) =$

- a. 0.001
- b. 0.001
- c. 0.009
- d. 0.0099

100) Plantains are sold at  $d$  dollars per kilograms. The total weight of 30 plantains is 5 kilogram. What is the average cost of 1 plantain?

- a.  $\$30d/5$
- b.  $\$5d/30$
- c.  $\$5d$
- d.  $\$15d$

101) The number 32747 written to 4 significant figures is-----.

- a. 32740
- b. 32750
- c. 3274
- d. 3275

102. The number 3754 expressed to the nearest hundred is-----.

- a. 3700
- b. 3750
- c. 3800
- d. 4000

103)  $0.045 \times 10^{-3}$  in scientific notation is-----.

- a.  $4.5 \times 10^{-4}$
- b.  $4.5 \times 10^{-5}$
- c.  $4.5 \times 10^{-4}$
- d.  $4.5 \times 10^{-1}$

104) The sizes of the interior angles of a polygon are  $x^\circ$ ,  $2x^\circ$ ,  $60^\circ$ ,  $3x^\circ$ , and  $36^\circ$ . What is the value of  $x$ ?

- a. 14
- b. 16
- c. 44
- d. 74

105) The expression  $(3x - 2)(x + 1) =$

- a.  $3x^2 - x - 2$
- b.  $3x^2 - x + 2$
- c.  $3x^2 + x - 2$
- d.  $3x^2 + x + 2$

106) The cost price of an article is \$ 40 and the profit is 20 percent of the cost price  
What is the selling price of the article?

- a. \$40.20
- b. \$48.00
- c. \$50.00
- d. \$ 60.00

107) What is the value of  $(5 + 2)^3 / 5^2 - 2^2$  in its simplest form?

- a.  $8/21$
- b.  $7/3$
- c.  $7/2$
- d.  $49/3$



MATHEMATICS

108) How much simple interest is due on a loan of \$ 120 for two years if the annual rate of interest is 5.5 percent.

- a. \$12.00
- b. \$ 13.20
- c. \$ 26.40
- d. \$33.00

109) Given that  $2x + 6 = 7$ , then  $x =$

- a.  $-6\frac{1}{2}$
- b.  $-\frac{1}{2}$
- c.  $\frac{1}{2}$
- d.  $6\frac{1}{2}$

GUYANA DEFENCE FORCE

110)

Rate on Fixed Deposits	
1975	7.8%
1976	7.5%

How much more interest would a fixed deposit of \$1000 earn in 1975 than in 1976?

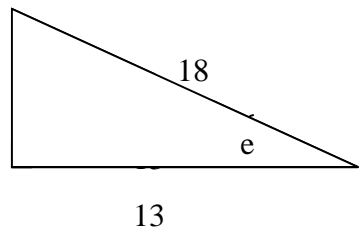
- a. \$0.30
- b. \$3.00
- c. \$30.00
- d. \$33.00

111) If  $\frac{1}{f} = \frac{1}{3} + \frac{1}{4}$ , then  $f =$

- a.  $\frac{7}{12}$
- b.  $\frac{17}{12}$
- c.  $\frac{12}{7}$
- d.  $\frac{2}{7}$

GUYANA DEFENCE FORCE

112)



In the diagram above. Which of the following is true?

a.  $\sin e = \frac{13}{18}$

b.  $\cos e = \frac{13}{18}$

c.  $\sin e = \frac{18}{13}$

d.  $\tan e = \frac{18}{13}$

113) A store charges 16% VAT on all sales. What is the total cost of a shirt marked \$3000?

a. \$3560

b. \$3480

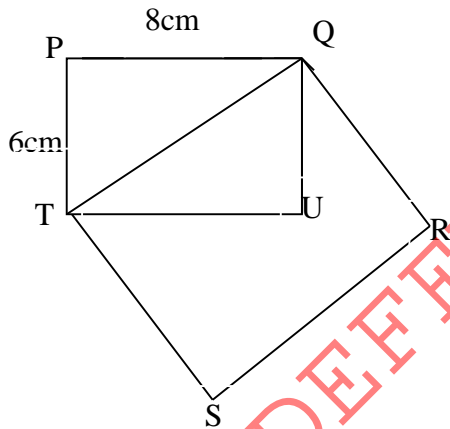
c. \$3400

d. \$3520

114) On vacation in USA George purchased a laptop computer for US\$450. What is the value of the laptop computer in Guy\$? ( US\$1.00 = Guy\$200 Guyan).

- a. \$75000
- b. \$85000
- c. \$90000
- d. \$100000

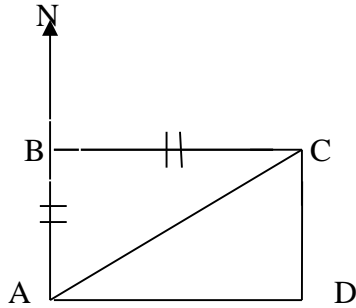
115)



In the figure above (not drawn to scale), PQUT is a rectangle in which  $PQ = 8\text{cm}$  and  $PT = 6\text{ cm}$ . QRST is a square. The area of QRST is-----.

- a.  $40\text{ cm}^2$
- b.  $48\text{ cm}^2$
- c.  $56\text{ cm}^2$
- d.  $100\text{ cm}^2$

116)



In the diagram above, B is due North of A, and C is East of B.  $AB = BC$ . What is the bearing of A from C?

- a.  $045^{\circ}$
- b.  $090^{\circ}$
- c.  $135^{\circ}$
- d.  $225^{\circ}$

117) Solve the equation

$$15 - 4x = 2(3x + 1)$$

- a.  $1\frac{2}{5}$
- b.  $1\frac{7}{8}$
- c.  $1\frac{3}{10}$
- d.  $1\frac{4}{5}$

118) Factorize completely.

$$6a^2b^3 + 12a^4b$$

- a.  $(6ab)(ab + 2a)$
- b.  $(6ab)(ab^2 + 2a^3)$
- c.  $(6ab^2)(ab + 2ab)$
- d.  $(6ab)(ab - 2ab)$

119) Determine the exact value of  $(\overline{3.9 \times 0.27}) + 0.6724$

- a. 1.35
- b. 2.451
- c. 1.934
- d. 2.333

120) Change the following statement into an algebraic expression: 12 larger than the product of a and b

- a.  $ab + 12$
- b.  $ab - 12$
- c.  $12 - ab$
- d.  $12a - 12b$

MATHEMATICS

121) A piece of wire is bent in the form of a circle and it encloses an area of  $154 \text{ cm}^2$ .

What is the radius of the circle?

- a. 12cm
- b. 9 cm
- c. 14 cm
- d. 7cm

122) In a beauty contest , the scores awarded by eight judges were 5.9; 6.7; 6.8; 6.5; 6.7; 8.2; 6.1; 6.3. What is the mean?

- a. 6.65
- b. 8.2 1
- c. 6.67
- d. 6.35

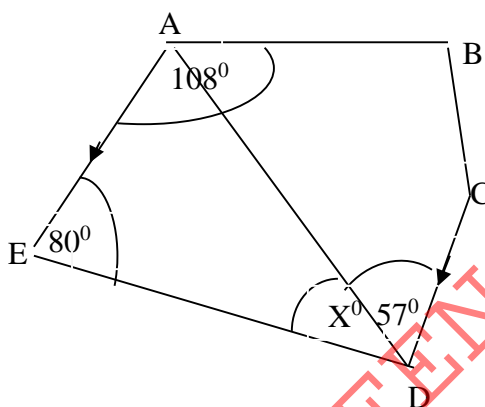
123) What is the median of the following 5.9; 6.7; 6.8; 6.5; 6.7; 8.2; 6.1; 6.3

- a. 5.9
- b. 6.6
- c. 7.5
- d. 6.3

124) The following represent the weights (in kgs) of bunches of plantains: 5.9; 6.7; 6.8; 6.5; 6.7; 8.2; 6.1; 6.3. What is the modal weight?

- a. 9.1
- b. 6.4
- c. 6.7
- d. 8.4

125)



In the diagram, shown above, ABCDE is a pentagon, angle BAE =  $108^\circ$ , angle ABC =  $90^\circ$ , angle AED =  $80^\circ$ , angle ADC =  $57^\circ$  and AE is parallel to CD. Calculate the size of the angle marked  $x^\circ$

- a.  $33^\circ$
- b.  $54^\circ$
- c.  $39^\circ$
- d.  $43^\circ$

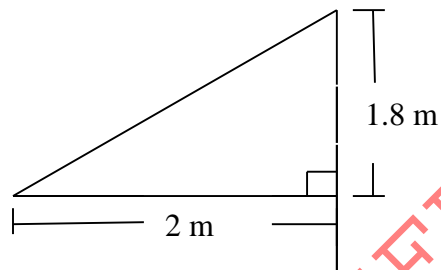


126) Factorize completely

$$2m^2 + 9m - 5$$

- a.  $(m + 5)(2m + 9)$
- b.  $(m + 5)(2m - 9)$
- c.  $(m + 5)(2m - 9)$
- d.  $(2m - 1)(m + 5)$

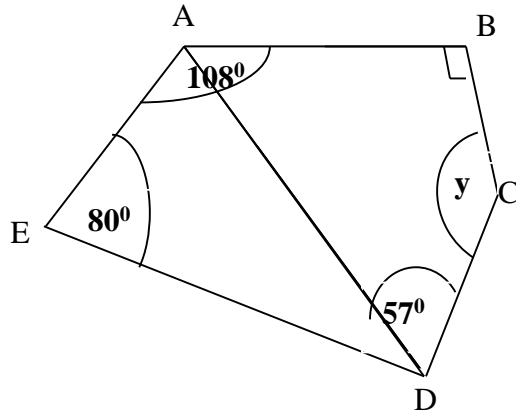
127) A vertical stick of height 1.8 m casts a shadow of length 2 m on the horizontal as shown in the diagram below.



Calculate the angle of elevation of the sun.

- a.  $42^\circ$
- b.  $36^\circ$
- c.  $45^\circ$
- d.  $54^\circ$

128)



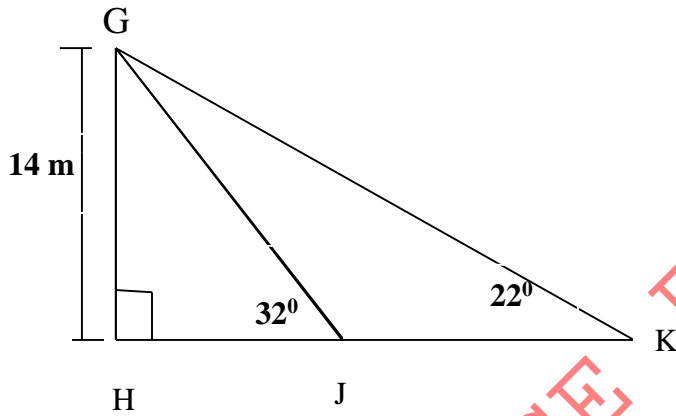
Calculate the size of the angle marked  $y$  in the diagram above, given that AE is parallel to DC.

- a.  $165^\circ$
- b.  $180^\circ$
- c.  $162^\circ$
- d.  $148^\circ$

129) Jack Bought a shirt marked at \$800. He received a 10% discount. How much does he pay for the shirt?

- a. \$540
- b. \$700
- c. \$720
- d. \$740

130) In the diagram below, not drawn to scale, GH is a vertical pole standing on a horizontal plane and H, J and K are points on the horizontal plane.  $GH = 14$  metres and the angles of elevation of the top of the pole G from J and K are  $32^\circ$  and  $22^\circ$  respectively. Calculate to one decimal place the length of HJ.



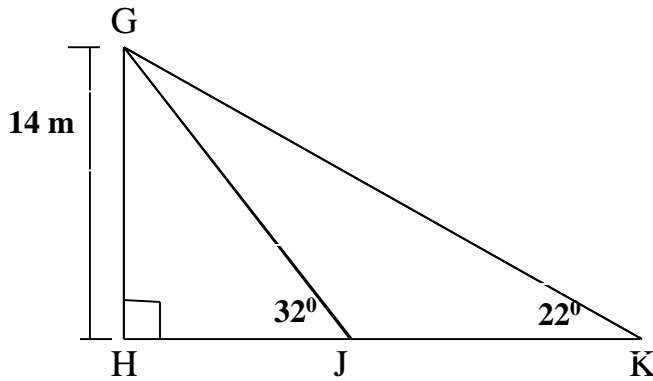
- a. 25 m
- b. 28.3
- c. 22.4 m
- d. 21 m

131) Express as a single fraction

$$1\frac{1}{2} - \frac{4}{5}$$

- a.  $17/10$
- b.  $34/15$
- c.  $12/17$
- d.  $19/25$

- 132) In the diagram below, not drawn to scale, GH is a vertical pole standing on a horizontal plane and H, J and K are points on the horizontal plane.  $GH = 14$  metres and the angles of elevation of the top of the pole G from J and K are  $32^\circ$  and  $22^\circ$  respectively. Calculate the length of JK.

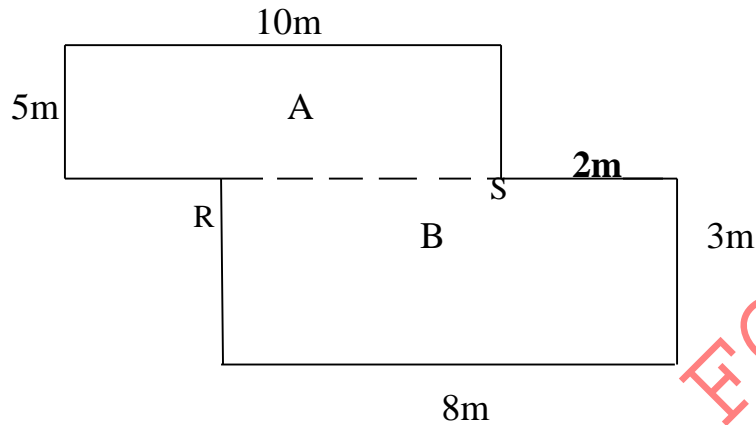


- a. 16. m
- b. 14 m
- c. 18 m
- d. 12 m

GUYANA DEFENCE FORCE

MATHEMATICS

133) The diagram below, not drawn to scale, represents the plan of a floor. The broken line RS, divides the floor into two rectangles, A and B. Use the diagram to answer the question.



Calculate the length of RS.

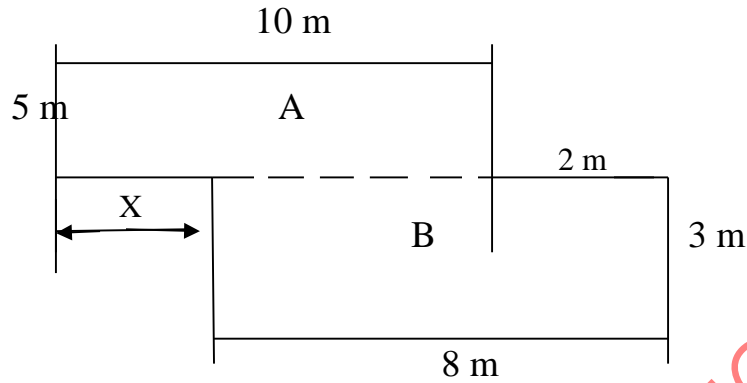
- a. 6m
- b. 8m
- c. 12m
- d. 14m

134) Simplify  $3m - 2(m + 1)$

- a.  $2m + 2$
- b.  $m - 1$
- c.  $m + 1$
- d.  $3m$

MATHEMATICS

135) In the diagram below, state the value of X. a. 2m b. 4m c. 6m d. 8m



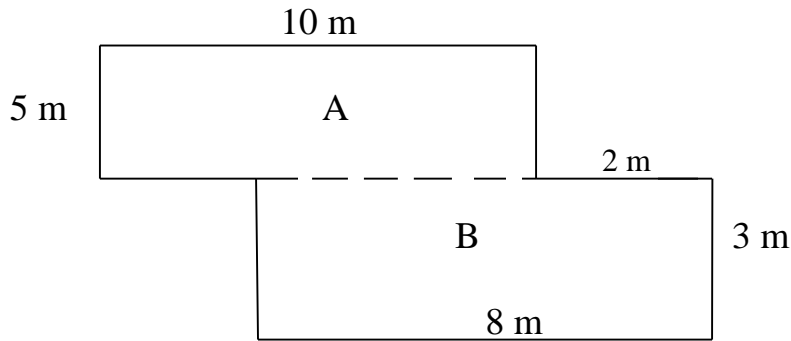
- a. 2m
- b. 4m
- c. 6m
- d. 8m

136) Simplify

$$\frac{3}{y} - \frac{2}{y-2}$$

- a.  $y - 6 / y^2 - 2y$
- b.  $y - 4 / y - 2$
- c.  $y + 2 / y - 1$
- d.  $y - 3 / y + 2$

137. Calculate the perimeter of the diagram below.



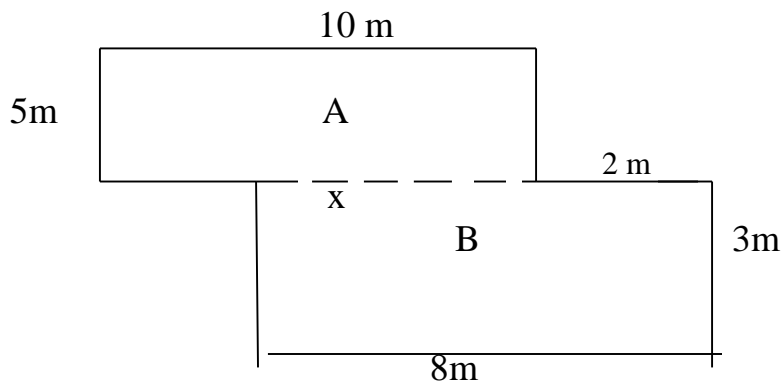
- a. 60 m
- b. 50 m
- c. 40 m
- d. 70

138) Simplify Type equation here.

$$\frac{3}{y} + \frac{2}{y-2}$$

- a.  $5y - 6/y^2 - 2y$
- b.  $5/2y - 2$
- c.  $5/y^2 - 1$
- d.  $3y + 6/y + 1$

139)



What is the area of the diagram above?

- a.  $76 \text{ m}^2$
- b.  $68 \text{ m}^2$
- c.  $86 \text{ m}^2$
- d.  $74 \text{ m}^2$

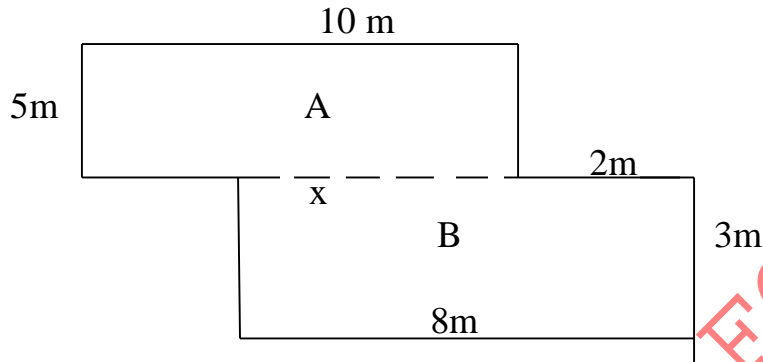
140) Solve the equation

$$2(x - 1) = 5 / 2$$

- a. 2.64
- b. 2.25
- c. 2.56
- d. 2.00



141)



Section **A** of the diagram above is to be covered with flooring boards measuring  $20\text{ cm} \times 20\text{ cm}$ . How many flooring boards are needed for covering section **A**?

- a. 1250
- b. 1300
- c. 1350
- d. 1400

142) Change the following statement into an algebraic expression: 5 times the sum of  $x$  and 5

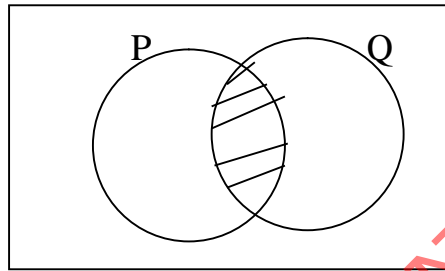
- a.  $(5x + 25x)$
- b.  $(5x + 5)$
- c.  $5(x+5)$
- d.  $5x(x + 5)$

MATHEMATICS

143) A pyramid stands on a square base of sides 6cm. If its vertical height is 10 cm. The volume of the pyramid (in  $\text{cm}^3$ ) is-----.

- a. 90
- b. 120
- c. 180
- d. 360.

144)



In the venn diagram above the shaded portion represents

- a.  $P \cup Q$
- b.  $P \cap Q'$
- c.  $P' \cap Q$
- d.  $P \cap Q$

MATHEMATICS

145) The **mean** of ten numbers is 58. If one of the numbers is 40. What is the mean of the other nine?

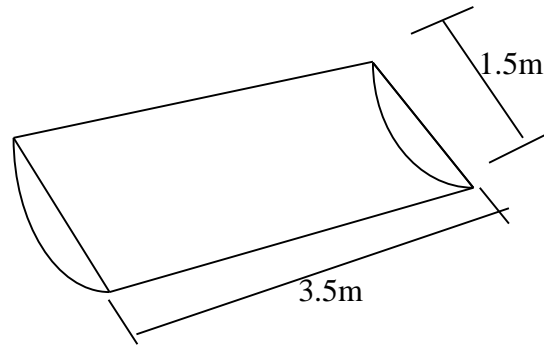
- a. 18
- b. 60
- c. 162
- d. 540

146) The observation which occurs most frequently in a sample is the ----.

- a. median
- b. mean deviation
- c. standard deviation
- d. mode

GUYANA DEFENCE FORCE

147)



The diagram above (not drawn to scale), represents an open metal container. The cross - section of the container is a semi - circle, of diameter 1.5m. The length of the container is 3.5m. (Take  $\pi=3.142$ )

What is the radius of the cross - section of the container?

- a. 0.75m
- b. 0.85m
- c. 0.45m
- d. 0.35m

148) A circular hole with diameter 6cm is cut out of a circular piece of card board with a diameter of 12cm. The area of the remaining card board is ----.

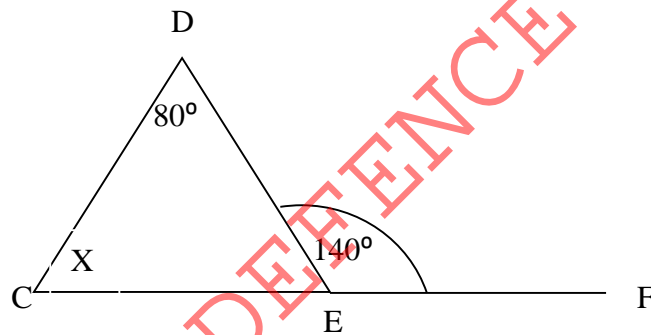
- a. 6
- b. 27
- c. 36
- d. 108

MATHEMATICS

149) Solve the equation  $y = x - \frac{1}{2}$ , given that  $x = 3 \frac{1}{4}$

- a.  $\frac{13}{4}$
- b.  $\frac{21}{2}$
- c.  $\frac{11}{4}$
- d.  $\frac{23}{4}$

150)



Calculate the value of the angle marked x.

- a. 30
- b. 60
- c. 50
- d. 40

MATHEMATICS

151) Given that  $y = \frac{1}{2}x^3$ , complete the table below.

X	-2	-1	0	1	2	3
y		-0.5	0	$\frac{1}{2}$	4	13.5

- a. -4
- b. -8
- c. 6
- d. 10

152) The function  $g$ , is defined as

$$g: x \rightarrow \frac{2x+3}{x-4}$$

Calculate the value of  $g(7)$

- a.  $15/6$
- b.  $11/4$
- c.  $13/5$
- d.  $17/3$

GUYANA DEFENCE FORCE

MATHEMATICS

153) If  $f(x) = 3x^2 - 5x + 2$ , determine  $f(2)$

- a. 4
- b. 6
- c. 8
- d. 10

154) In a class of 50 students, the number of students playing chess is 5, tennis 6, cricket 12, hockey 8 and bridge 5. The percentage of student playing bridge is----.

- a. 8
- b. 10
- c. 20
- d. 25

155) If  $f: \frac{1}{x} + x$ , then  $f\left(\frac{1}{2}\right)$

- a.  $\frac{1}{4}$
- b. 1
- c.  $2\frac{1}{2}$
- d. 4

MATHEMATICS

156) The values of  $x$  and  $y$  which satisfy  $2x + 3y = 1$  and  $3x - y = 7$  are respectively

- a. 3 and 2
- b. - 1 and 1
- c. -1/2 and 1
- d. 2 and -1

157) When 26.516 is divided by 1.2, the answer corrected to two significant figures, is-----.

- a. 0.10
- b. 22
- c. 22.09
- d. 22.10

158) P is a point 20 metres away from the foot of a tower. If the angle of elevation from to the top of the tower is  $40^\circ$ . Then the height of the tower (in metres) is---

- a.  $20 \cos 50^\circ$
- b.  $20 \sin 40^\circ$
- c.  $20 \tan 40^\circ$
- d.  $20 \tan 50^\circ$



MATHEMATICS

159) If  $\tan x = 0.75$  , then  $\cos x =$

- a. 0.60
- b. 0.80
- c. 1.20
- d. 1.33

160. The premium paid to insure a motor cycle valued at \$300,000, against loss by theft or accident is \$2000 the premium expressed as a percentage of the value of the motor cycle is

- a. 6.7
- b. 0.66
- c. 0.68
- d. 0.67

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