

GUYANA DEFENCE FORCE

ACADEMIC EDUCATION PROGRAMME

MATHEMATICS

LEVEL THREE PROMOTIONAL EXAMINATION

Instruction: Use the blank sheets provided to do any calculation. The use of the calculator is permitted. The use of calculator is permitted.

ANSWER ALL QUESTIONS

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

One mark for each correct answer.

- 1) The area of a sector of a circle of radius 9cm and sector angle 120° is - (answer to 1 decimal place)
- a. 848 cm²
 - b. 84.8 cm²
 - c. 8.48 cm²
 - d. 0.848 cm²
- 2) During a sales, 5% discount is given on a text book priced at \$3500. What is the price paid for the text book if purchased at the discount price?
- a. \$3325
 - b. \$33.25
 - c. \$3.325
 - d. \$345\

3) Given $a = 3$ $b = 2$ $c = -1$, what is the value of $4a - 2b - 5c$?

a. 3

b. -13

c. 13

d. 5

4) The point A $(-1, 3)$ undergoes a translation $(-3, 6)$. The coordinates of A is-----.

a. $(-9, 4)$

b. $(4, 9)$

c. $(9, 4)$

d. $(-4, 9)$

5) The sine of 55° is-----.

a. 0.819

b. 819

c. 8.19

d. 81.9

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6) The matrix $Q = \begin{bmatrix} 2, & 4 \end{bmatrix}$ is called

- a. row matrix
- b. square matrix
- c. diagonal matrix
- d. null matrix

7) In the equation $4^a = 64$, 'a' is equal to

- a. 9
- b. 4
- c. 3
- d. 8

8) $3x^3 \times 2x^2 \times 3x^4 =$

- a. $18x^9$
- b. $8x^9$
- c. $10x^9$
- d. $24x^9$

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9) $A = r^2 \times \frac{\theta}{360^\circ}$ is used to calculate the area of a -----.

- a. section
- b. sector
- c. segment
- d. square

10) ABC is a right- angled triangle, AB = 8cm, and AC= 12cm. What is the length of BC?

- a. 8.9 cm
- b. 0.8 cm
- c. 80 cm
- d. 8.0 cm

11) $2a^{-2} \times 3a^{-3} \times a^{-1} = ?$

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

12) The length of arc of a circle of radius 9cm and sector angle of 108° is

- a. 169.6 cm^2
- b. 16.96 cm
- c. 1.69 cm^2
- d. 0.16 c

13) $3x/3 - 3x/4 =$ (to its lowest term)

a. $x/4$

b. $4/x$

c. $x/7$

d. $-6x/7$

14) A car dealer bought a car. He then sold it for \$1,000,000 thereby incurring a loss of \$110,000. What was the cost of the car?

a. \$ 1,010

b. \$ 101,000

c. \$1,110,000

d. \$110,000

15) A metal is made from copper, zinc and lead in the ratio 13: 6 : 1. The mass of zinc is 90kg. Calculate the mass of the metal.

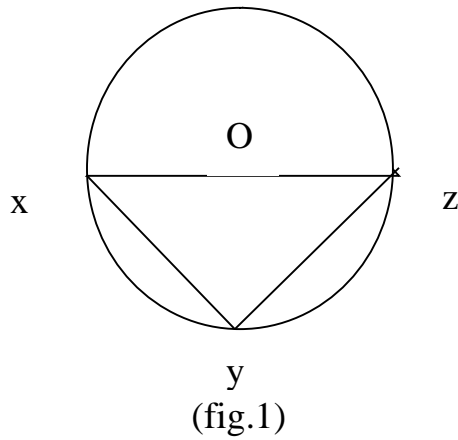
a. 500 kg

b. 700 kg

c. 300 kg

d. 900 kg

16) In the diagram below (fig.1) XYZ is a triangle inscribed in a circle with centre O, with XZ being the diameter. The angle at y is called a -----?



- a. obtuse angle
- b. right angle
- c. straight angle
- d. oblique angle

17) Which of the following is **TRUE** about reflection? It preserves.

- a. betweenness
- b. distance
- c. brightness
- d. angles

18)

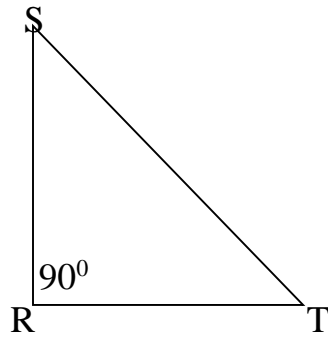


Fig. 2

Triangle RST (fig. 2) is a right-angled triangle with angle $\text{SRT} = 90^\circ$, ST is called the?

- a. base
- b. adjacent side
- c. hypotenuse
- d. opposite side

19) If $A = \begin{pmatrix} 4 & 1 \\ 2 & 4 \end{pmatrix}$ and $B = \begin{pmatrix} 3 & 5 \\ 4 & 7 \end{pmatrix}$ then $A - B =$

a. $\begin{pmatrix} 1 & 4 \\ 2 & 7 \end{pmatrix}$

b. $\begin{pmatrix} -4 & 1 \\ -3 & -2 \end{pmatrix}$

c. $\begin{pmatrix} 1 & -4 \\ -2 & -3 \end{pmatrix}$

d. $\begin{pmatrix} 2 & 7 \\ 1 & 4 \end{pmatrix}$

20) If two **parallel lines** are cut by a third straight line, which of the following are **NOT TRUE**?

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

- a. II only
- b. II and III only
- c. III and IV only
- d. I and IV only.

21) Simplify : $X^{1/2} \times X^{1/4}$

- a. $X^{3/4}$
- b. $X^{1/6}$
- c. $X^{3/8}$
- d. $X^{1/4}$

22) Solve the simultaneous equation

$$\begin{aligned}2x + y &= 3 \\2x + 3y &= 31\end{aligned}$$

- a. $x = 5, y = 7$
- b. $x = 7, y = 5$
- c. $x = 3, y = 2$
- d. $x = 4, y = 3$

23) Simplify: $3y/4 + 2y$

a. $6y^2/4$

b. $11y/4$

c. $5y/$

d. $11y$

24) A Tinsmith wants to make a measuring cup in the shape of an open-ended cylinder of height 30cm and radius 3cm. Calculate the amount of material (to the closest whole number) required to make the measuring cup.

a. 386 cm^2

b. 764 cm^2

c. 536 cm^2

d. 594 cm^2

25) A floor measuring 50m by 35m is to be covered by tiles measuring 1.5m^2 . Calculate the amount of tiles required to cover the floor.

a. 1500

b. 1400

c. 1234

d. 1167

26) Find the angle in degrees corresponding to $\frac{1}{8}$ of a revolution.

a. 60°

b. 30°

c. 50°

d. 45°

27) The score listed below are the results of 30 students in an examination.

1	3	5	0	2
2	1	6	5	6
0	3	5	1	1
5	2	1	0	6
1	4	0	3	5
0	3	4	6	3

What is the highest marks score in the examination?

a. 5

b. 6

c. 4

d. 3

28) The score listed below are the results of 30 students in an examination.

3 3 5 0 2
4 1 6 5 6
1 3 5 1 1
6 2 1 0 6
1 4 0 3 5
0 3 4 6 3

What is the frequency of the highest marks scored?

- a. 2
- b. 5
- c. 4
- d. 1

29) The score listed below are the results of 30 students in an examination.

5 3 5 0 2
6 1 6 5 6
2 3 5 1 1
7 2 1 0 6
1 4 0 3 5
0 3 4 6 3

What is a modal score?

- a. 1
- b. 2
- c. 3
- d. 4

30) If 20% of the length of a bar is 230 mm, what is the complete length?

- a. 920
- b. 1150
- c. 1320
- d. 1440

31) The square root of 625 is-----.

- a. 25
- b. 2.5
- c. 15
- d. 35

32) The simple interest on \$6000 for 4 years at 6 percent per annum is-----.

- a. $\frac{\$6000 \times 4}{100 \times 6}$
- b. $\frac{\$6000 \times 6}{100 \times 6}$
- c. $\frac{\$6000 \times 4 \times 6}{100}$
- d. $\frac{\$6 \times 4}{6000}$

33) $P = \{2,3,5,7,9\}$, $Q = \{2,3,6,7\}$ and $R = \{2,3,5\}$, then $P \cap Q \cap R =$

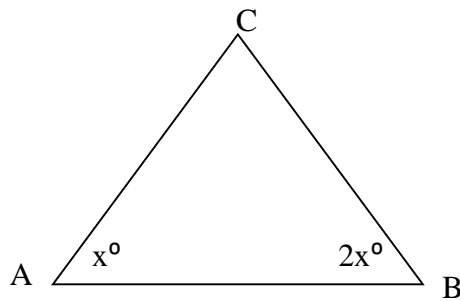
a. $\{2,3,5,6,7,9\}$

b. $\{\}$

c. $\{6,7,9\}$

d. $\{2,3\}$

34)



In the triangle ABC above, angle A = x° and angle B = $2x^\circ$. What is the value of angle C =

a. 60°

b. $180^\circ/3x^\circ$

c. $180 - 3x^\circ$

d. 45°

35) Solve $\frac{x}{5} + \frac{5}{x} =$

a. $x + 5/5x$

b. $x^2 + 25/5x$

c. $5(x + 5)/5x$

d. $5 + x/x$

36) How many litres of juice would a container of 3000 cm^3 be able to hold?

a. 3

b. 30

c. 300

d. 3000

37) Given $a = 2$ and $b = -3$. What is the value of $a - 3b/ab = ?$

a. $11/6$

b. $11/6$

c. $7/6$

d. $7/6$

38) Given $L = \begin{pmatrix} 3 \\ 2 \end{pmatrix}$ and $M = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$, then $L + M =$

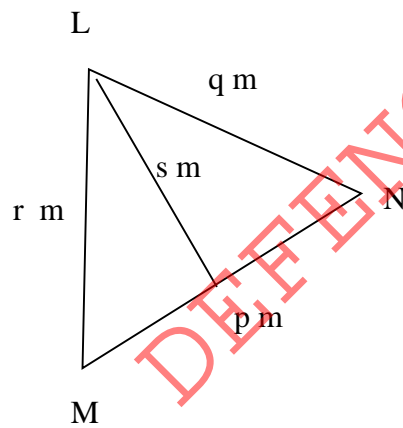
a. $\begin{pmatrix} -2 \\ 2 \end{pmatrix}$

b. $\begin{pmatrix} 2 \\ 2 \end{pmatrix}$

c. $\begin{pmatrix} -1 \\ 0 \end{pmatrix}$

d. $\begin{pmatrix} -3 \\ 0 \end{pmatrix}$

39)



The area of triangle LMN above(in m^2) is

a. $\frac{1}{2} qs$

b. $\frac{1}{2} rs$

c. $\frac{1}{2} ps$

d. $\frac{1}{2} sr$

40) A man leaves his workplace at 15:45 hrs and reaches home at 02:45 hrs (the following morning). How many hours did he take to reach home?

- a. 12
- b. 18
- c. 14
- d. 11

41) A refrigerator which cost \$100,000 can be purchased by making a deposit of \$40,000 and the remainder paid in monthly installments of \$2,500. How many months will it take the purchaser to finish paying for the refrigerator?

- a. 12
- b. 18
- c. 24
- d. 36

42) The statement 'a number P decreased by three times another number q is equal to r', can be expressed algebraically as

- a. $r = 3q - p$
- b. $3q + r = -p$
- c. $q = r - \frac{1}{3}p$
- d. $p - 3q = r$

43)

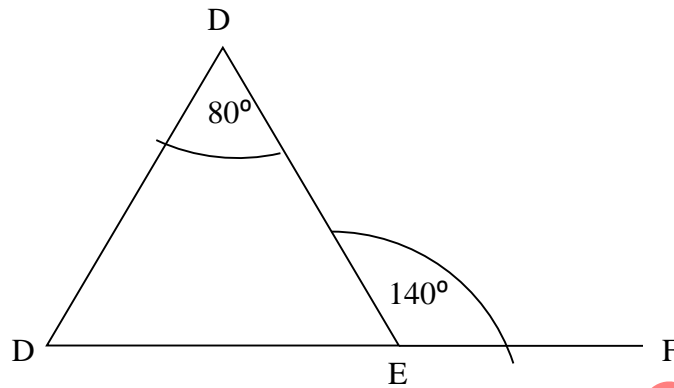


Fig. 2

In the figure 2 above, what is the value of the angle at D

- a. 30°
- b. 60°
- c. 50°
- d. 40°

44) Solve the equation $y = x - \frac{1}{2}$, when $x = 3 \frac{1}{4}$

- a. $\frac{13}{4}$
- b. $2\frac{1}{2}$
- c. $\frac{11}{6}$
- d. $2 \frac{3}{4}$

45) After 33% of a man's salary had been deducted for tax he received \$16,800. The amount paid in tax was -----.

- a. \$8275
- b. \$82.75
- c. \$16,970
- d. \$169.70

46) If $x \ y$ means $3x - 2y$, then $4 \ 1 =$

- a.12
- b. -5
- c.15
- d.10

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47)

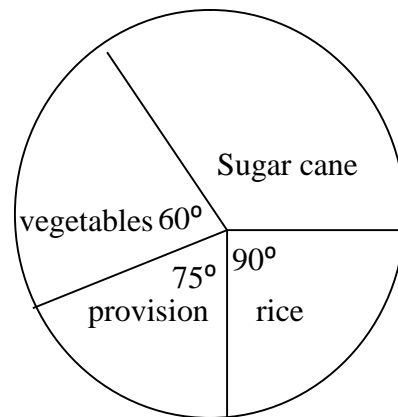


Fig. 3

The diagram above (fig. 3) shows the portions of land allotted to various crops. Rice was cultivated on 4.5 hectares. What area of land was cultivated with sugar cane?

- a. 6 hectares
- b. 6.25 hectares
- c. 6.5 hectares
- d. 6.75 hectares

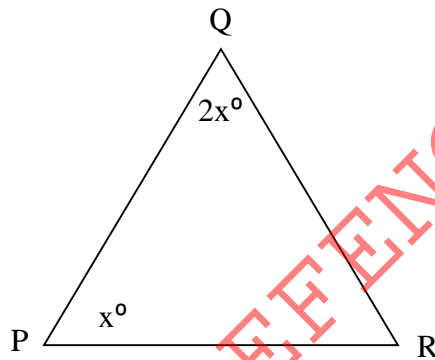
48) Given that $9.5 = 3.08$, then $9.5 \times 10^2 =$

- a. 3.08
- b. 3.08×10^2
- c. 3.08×10
- d. 1.54×10

49) 0.00451, expressed in standard form =

- a. 4.51×10^{-1}
- b. 4.51×10^{-3}
- c. 4.51×10^{-2}
- d. 4.51×10^{-4}

50) In the triangle below PQR, angle P = x° , angle Q = $2x^\circ$ and angle R = $3x^\circ$, then angle R =-----.



- a. 30°
- b. 60°
- c. 90°
- d. 45°

51)

x	1	2	3	4	5	6	7	8
f	5	3	6	7	2	1	3	4

The chart above represents a -----.

- a. frequency distrib
- b. tally chart
- c. cumulative frequency chart
- d. frequency table

52) Given that $x = (1,2,3)$, then the number of subsets which can be formed is-

- a. 3
- b. 6
- c. 8
- d. 9

53) The number 56256 correct to four (4) significant figures is-

- a. 5625
- b. 5636
- c. 5626
- d. 5656

54) y is directly proportional to x . When $x = 15$, then $y = 12$. What is y when $x = 45$?

- a. 30
- b. 36
- c. 40
- d. 42

55) Given that $x/y = 1/2$, which of the following is true?

- a. $x - 2 = y - 1$
- b. $x - y = 2$
- c. $y = 2x$
- d. $x = 2y$

56) The **mean** of 11 numbers is 9. One of the numbers 19, is deleted. What is the new **mean** of the remaining numbers?

- a. 8
- b. 7
- c. 8.5
- d. 6

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57) \$5600 is divided into two parts in the ratio 3:4, the larger part is -----.

- a. \$3000
- b. \$2800
- c. \$2400
- d. \$3200

58) The marked price of a pair of pants is \$1000. VAT of 16% is charged when purchase is made. The price to be paid by the customer will be -----.

- a. \$1160
- b. \$160
- c. \$11.60
- d. \$1200

59) A square has the same area as a rectangle with sides of 4cm and 25 cm. What is the length of a side of the square?

- a. 100 cm
- b. 10 cm
- c. 5 cm
- d. 58 cm

60) $x^3 y / xy^2 =$

a. x/y

b. x^2/y

c. x/y^2

d. $x^2 y^{-2}$

61) The **area** of a sector of a circle of radius 7cm and sector angle 108° is-----.

a. 462 cm^2

b. 46.2 cm^2

c. 4.62 cm^2

d. 0.462 cm^2

62) A text book is priced at \$3000. During a sale a 5% discount is given on the same text book. What is the price paid for the text book if purchased at the discount price?

a. \$2850

b. \$28.50

c. \$285

d. \$28500

63) Given $a = 3$; $b = 2$; and $c = -1$, what is the value of $3a + 2b - 3c$

a. 10

b. -16

c. 16

d. 2

64) The point A (-1,3) undergoes a translation (-2,4). The coordinates of A' is-----.

a. (-7,3)

b. (3,7)

c. (7,3)

d. (-3,7)

65) The cosine of 35° is-----

a. 0.819

b. 819

c. 8.19

d. 81

.

66) The matrix $Q = (2 \ 4)$ is called a -----.

- a. column matrix
- b. square matrix
- c. diagonal matrix
- d. row matrix

67) In the equation $3^a = 27$, **a** is equal to-----.

- a. 9
- b. 2
- c. 3
- d. 27

68) $4x^2 \times 2x^3 \times 3x^3 =$

- a. $9x^8$
- b. $24x$
- c. $10x$
- d. $24x^8$

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69) $I = PRT/100$, then $P =$

a. $100PT/I$

b. $100I/RT$

c. $1PT/100$

d. $PT/100I$

70) ABC is a right-angled triangle, $AB = 8$ cm, and $BC = 7$ cm. The length of AC is -----.

a. 0.106 cm

b. 10.6 cm

c. 1.06 cm

d. 106 cm

71) $a^{-2} \times a^{-3} \times a^{-1} =$

a. $1/a^6$

b. a^{-6}

c. a^6

d. $1/a^{-6}$

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72) The length of arc of a circle of radius 7cm and sector angle of 108 is-----.

- a. 13.2cm^2
- b. 13.2cm
- c. 1.32cm^2
- d. 1.32cm

73) $2x/3 + 3x/4 =$

- a. $17x/12$
- b. $17/12x$
- c. 15x
- d. $5x/7$

74) A car dealer bought a car. He then sold it for \$900,000, thereby incurring a loss of \$ 110,000. What was the cost of the car?

- a. \$ 1.010
- b. \$ 101,000
- c. \$1,010,000
- d. \$101000

75) The width of a block of wood with rectangular cross section is x cm, its height is $\frac{2}{3}$ its width and its length is 4 times its height. What is its volume in cm^3 .

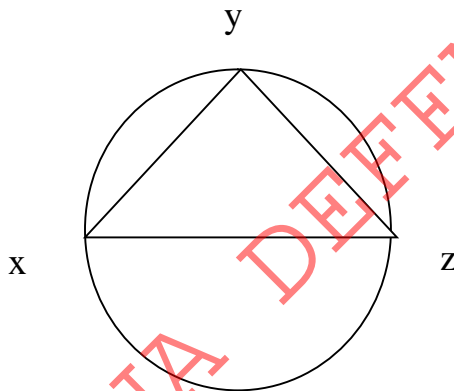
a. $8x/9$

b. $16x^3/9$

c. $8x^3/9$

d. $17x/9$

76)



In the above diagram XYZ is a triangle **inscribed** in a circle, with XZ being the diameter. What is the name of the triangle XYZ?

a. scalene

b. right- angled

c. equilateral

d. isosceles

77) Which of the following is **NOT TRUE** about reflection? It preserves..

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

a. (i), (ii),(iii) only

b. (i) only

c. (i), (ii) only

d. (i), (iv) only

78) Triangle RST is a right- angled triangle with angle $\angle RST = 32^\circ$ and $RT = 60\text{cm}$. What is the length of RS =?

a. 37.8cm

b. 38cm

c. 78cm

d. 0.378 cm

79) If $A = \begin{pmatrix} 4 & 1 \\ 3 & 4 \end{pmatrix}$ and $B = \begin{pmatrix} 3 & 5 \\ 4 & 7 \end{pmatrix}$ then $A + B =$

a. $\begin{pmatrix} 7 & 6 \\ 7 & 11 \end{pmatrix}$

b. $\begin{pmatrix} 7 & 6 \\ 11 & 6 \end{pmatrix}$

c. $\begin{pmatrix} 7 & 6 \\ 6 & 11 \end{pmatrix}$

d. $\begin{pmatrix} 11 & 6 \\ 7 & 6 \end{pmatrix}$

80) If two **parallel lines** are cut by a third straight line, which of the following 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

81) A Tinsmith wants to make a measuring cup in the shape of an open- ended cylinder, of height 30cm and radius 3cm. What amount of material (to the nearest whole number) will be required to make the measuring cup?

- a. 56.5 cm²
- b. 565 cm²
- c. 56.5cm
- d. 565cm

82) A floor measuring 50m by 35m is to be covered by tiles measuring 0.5m². The amount of tiles required to cover the floor is -----.

- a. 875
- b. 35
- c. 3500
- d. 350

83) **ABC** is an equilateral triangle of sides 10cm. A vertical line **AD** is drawn from **A** and bisects **BC**, so that **BD = DC**. What is the height of **AD**?

- a. 75cm
- b. 8.66 cm
- c. 86.6cm
- d. 15cm

84) $X^{1/4} \times X =$

- a. $2x^{1/4}$
- b. $x^{1/4}$
- c. $2x^{1/4}$
- d. $x^{1/4}$

85) The solution to the simultaneous equation below is -----.

$$\begin{aligned}x + y &= 4 \\2x - y &= 5\end{aligned}$$

- a. $(x = 3; y = 1)$
- b. $(x = -3; y = 1)$
- c. $(x = 3; y = -1)$
- d. $(x = -3; y = -1)$

86) $3y/4 - 2y/3 =$

a. $y/12$

b. $y/2$

c. $12/y$

d. $2/y$

87) The points A (2,3), B(4,5) and C(7,3) are vertices of triangle ABC. What is the image of the triangle under the translation $T = (2,3)$

a. A [(0,0) , B (2,2), C (4,0)]

b. A [(4,6) , B (6,8), C (9,6)]

c. A [(4,9) , B (8,15), C (14,9)]

d. A [(3,2) , B (5,3), C (3,7)]

88) Triangle PQR has vertices P(-5,-2), Q(-3,-4) and R(-1,-2). What is the image of triangle PQR under a reflection in the Y- axis?

a. [P(5, 2) , Q (3, 4) R (1,2)]

b. [P(-5, -2) , Q (-3, -4) R (-1,-2)]

c. [P(5, -2) , Q (3, -4) R (1,-2)]

d. [P(2, -5) , Q (4, -3) R (2,-1)]

89) The score listed below are the Examination results of 25 students.

7 3 5 0 2
8 1 6 5 6
9 3 5 1 1
8 2 1 0 6
1 4 0 3 5

What is the probability that if a participant is selected at random he/she will score exactly 5 marks?

- a. 2
- b. 0.28
- c. 20
- d. 2.8

90) The tension in an elastic string is directly proportional to its extension. If the extension is 10 cm when the tension is 15 kilograms, what is the tension when the extension is 12 centimetres?

- a. 22.5 kg
- b. 18kg
- c. 12.5k
- d. 8 kg

91) The angle enclosed by **two radii and an arc** is referred to as the -----.

- a. arc
- b. segment angle
- c. sector angle
- d. section angle

92) A sector of radius 3m and sector angle 210° has an area of 16.49m^2 . What is its length of arc?

- a. 11.00m
- b. 11.00m^2
- c. 109.9m
- d. 109.9m^2

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93)

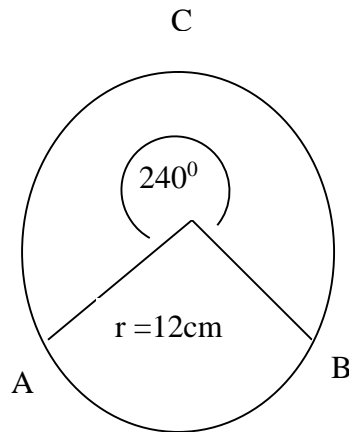


Fig. 4

The area of the major sector (ACB) of the above diagram (fig.4) is-----.

- a. 301.6 cm
- b. 376.6 cm
- c. 301.6 cm²
- d. 376.6 cm²

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94)

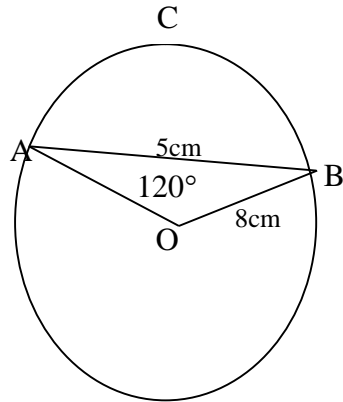


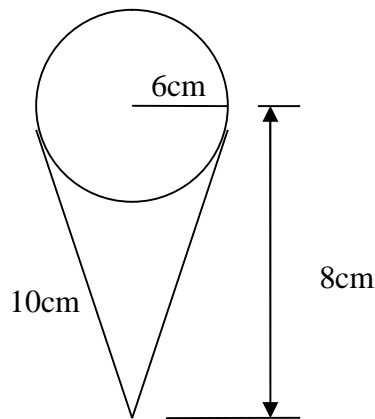
Fig.5

In the above diagram (fig. 5) O is the centre of the circle, and angle $AOB = 120^\circ$. What is the area of the segment ACB (to the closest whole number) in the above diagram (fig.5) is-----.

- a. 48cm
- b. 86 cm²
- c. 86 cm
- d. 48 cm²

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95)



The curved surface area of the cone above is -----.

- a. 188.4 cm
- b. 188.5 cm²
- c. 18.84 cm²
- d. 18.84 c

96) A woman purchased a blender at 20% discount. If she saved \$1,400 the original price of the blender is-----.

- a. \$7,000
- b. \$5,640
- c. \$1,400
- d. \$6540

97) A holding tank is to be made in the shape of a cone. The diameter of the circular end of the cone is 15m and its vertical height is 10m. The amount of material that will be required to make the tank is ----- . (Take $\pi = 3.14$)

a. 235.5 m

b. 23.4 m

c. 235.5 m²

d. 23.4m²

98) A customer purchased a property from a real estate dealer. Because she paid in cash for the property she saved \$315,225. She paid \$921,250. The marked price for the property was

a. \$123,647

b. \$1236.47

c. \$12,364

d. \$1,236,475

99) Solve $x^{1/2} \times x^{1/3} =$

a. $x^{2/5}$

b. $x^{3/2}$

c. $x^{5/6}$

d. $x^{2/3}$

100) A computer can be bought on hire purchase by making a deposit of \$13,600 and 40 monthly installments of \$1,500. The hire purchase price of the computer is-----.

- a. \$60,000
- b. \$73,600
- c. \$15,100
- d. \$28,600

101) Evaluate $Q^{4/5} \div Q^{2/3} =$

- a. $Q^{2/15}$
- b. $Q^{2/2}$
- c. $Q^{-7/10}$
- d. $Q^{1/3}$

102) A freezer which costs \$350,000 can be bought on hire purchase by making a deposit of 20% on the cash price. The deposit amount is-----.

- a. \$7000
- b. \$700
- c. \$70,000
- d. \$70

103) Simplify $(r^{2/3})^3 =$

a. $r^{2/9}$

b. r^2

c. r^3

d. r^1

104) A television which costs \$100,000 can be bought on hire purchase by paying 36 monthly installments of \$3500. What is the hire purchase price of the television?

a. 12.600

b. \$1,260

c. \$1.26000

d. \$126,000

105) A cellular phone is priced at \$50,125 exclusive of sales tax. If a sale tax of 12% is charged, what is the cost of the phone?

a. 56,140

b. \$6015

c. \$44,110

d. \$564.40

106) The cash price for a television set is \$45,000. When purchased on hire purchase a down payment of \$10,000 is required. The remainder is to be paid in 24 monthly installments of \$2,000. The amount paid in installments is-----.

- a. \$10,000
- b. \$35,000
- c. \$48,000
- d. \$57,000

107) A piece of land is priced at \$2,000,000. A bank offers an 83% mortgage. The deposit amount required is-----.

- a. \$34,000
- b. \$340,000
- c. \$1,660,000
- d. \$16,600

108) An airline ticket to New York is priced at \$GUY150,000 inclusive of a 16% VAT. What is the price of the ticket if VAT is excluded?

- a. \$24,000
- b. \$174,000
- c. \$136,000
- d. \$126,000

109) The area of a sector of a circle of radius 9cm and sector angle 120° is - ---.
(answer to 1 decimal place)

- a. 84.8 cm
- b. 84.8 cm²
- c. 8.48 cm²
- d. 8.48 cm

110) During a sale 5% discount is given on a text book priced at \$3500. What is the price paid for the text book if purchased at the discount price?

- a.\$3325
- b.\$33.25
- c.\$3.325
- d.\$2850

111). Given $a = 3$ $b = 2$ $c = -1$, what is the value of $4a-2b -5c$?

- a.3
- b.-13
- c.13
- d.5

GUYANA DEFENCE FORCE

112).The point A(-1,3) undergoes a translation (-3,6). The coordinates of A is ----.

a.(-9,4)

b.(4,9)

c.(9,4)

d.(-4,9)

113). The sine of 75° is-----.

a. 0.966

b.9660

c.9.066

d.09.66

114). The matrix $Q = \begin{pmatrix} 0, 0 \\ 0, 0 \end{pmatrix}$ is called a ---- matrix.

a.row

b.square

c.diagonal

d.null

GUYANA DEFENCE FORCE

115) In the equation $4^a = 64$, 'a' is equal to

a.9

b.4

c.3

d.8

116) $3x^3 \times 2x^2 \times -3x^4 =$

a. $-18x^9$

b. $18x^9$

c. $18x^{24}$

d. $18x^{-9}$

117) $a^2 = b^2 + c^2$, determine **b**.

a. $c^2 - a^2$

b. $a^2 + c^2$

c. $c^2 - a^2$

d. $a^2 + c^2$

GUYANA DEFENCE FORCE

118) ABC is a right- angled triangle, AB = 8cm, and AC= 12cm.What is the length of BC?

a.8.9 cm

b.80 cm

c.8.9 cm²

d.80 cm²

119) $2a^{-2} \times 3a^{-3} \times a^{-1} = ?$

a. $1/6a^{-6}$

b. $6a^{-6}$

c. $6a^6$

d. $1/6a^6$

120)The length of arc of a circle of radius 9cm and sector angle of 128° is-----.

a. 2009cm²

b. 2009cm

c. 20.1cm²

d. 20.1cm

GUYANA DEFENCE FORCE

121) $3x/3 - 3x/4 =$ (to its lowest term)

a. $x/4$

b. $4/x$

c. $-x/7$

d. $-6x/7$

122) A car dealer bought a car. He then sold it for \$1,000,000. There by incurring a loss of \$110,000. What was the cost of the car?

a. \$ 1,010

b. \$ 101,000

c. \$1,110,000

d. \$110,000

123) The statistical average that makes use of all the data in its calculations is called the--
-----.

a. mode

b. mean

c. median

d. lower quartile

124) In the diagram (fig.6) below angle XOZ is at the centre of the circle The angle XYZ is equal – the angle XOZ.

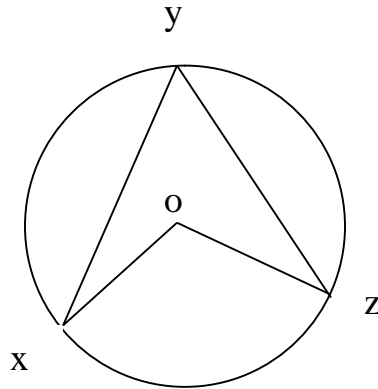


Fig.6

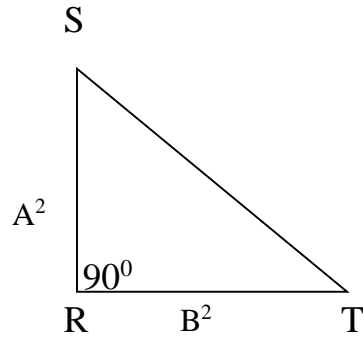
- a. $1/8$
- b. $3/4$
- c. $1/2$
- d. $5/8$

125) Which of the following is **NOT TRUE** about reflection? It preserves..

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

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

126)



Triangle RST is a right-angled triangle with angle $\text{SRT} = 90^\circ$, $\text{SR} = A^2$ and $\text{RT} = B^2$.
 $\text{ST} = ?$

- a. $A + B$
- b. $A^2 + B^2$
- c. $2A + 2B$
- d. $(A + B)^2$

127. If $A = \begin{pmatrix} 4 & 1 \\ 2 & -4 \end{pmatrix}$ and $B = \begin{pmatrix} -3 & 5 \\ 4 & 7 \end{pmatrix}$ then $B + A =$

- a. $\begin{pmatrix} 7, 6 \\ 6, 3 \end{pmatrix}$
- b. $\begin{pmatrix} 1, 6 \\ 1, 4 \end{pmatrix}$
- c. $\begin{pmatrix} 1, 6 \\ 6, -3 \end{pmatrix}$
- d. $\begin{pmatrix} -2, 3 \\ 6, 3 \end{pmatrix}$

128) If two **parallel lines** are cut by a third straight line, which of the following are **NOT TRUE**?

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

- a. II only
- b. II and III only
- c. III and IV only
- d. II and IV only

129) The **perimeter** of a sector of a circle of radius 7cm and sector angle 108° is-----.

- a. 27.19 cm²
- b. 2719 cm²
- c. 27.19 cm
- d. 2719 cm

130) A text book is priced at \$3000, a sales tax of 5% is charge on the text book when purchase. What is the price for the text book when purchased?

- a. \$2850
- b. \$28.50
- c. \$150
- d. \$3150

131) Given $a = 3$; $b = 2$; $c = -1$, what is the value of $3a + 2b - 3c$?

- a. 16
- b. -16
- c. 10
- d. -10

132) The point A $(-1, 3)$ undergoes a translation $(-2, 4)$. The coordinates of A' is-----.

- a. $(-7, 3)$
- b. $(3, 7)$
- c. $(7, 3)$
- d. $(-3, 7)$

133) The tangent of 35° is-----.

- a. - 0.700
- b. 0.700
- c. 700
- d. -700

GUYANA DEFENCE FORCE

134) The matrix $Q = \begin{pmatrix} 0 & 5 \\ 6 & 0 \end{pmatrix}$ is called a -----.

- a. column matrix
- b. square matrix
- c. diagonal matrix
- d. row matrix

135) In the equation $3^a = 81$, **a** is equal to

- a. 9
- b. 2
- c. 4
- d. 3

136) $4x^2 \times 2x^3 \times 3x^3 =$

- a. $9x^8$
- b. $24x$
- c. $9x$
- d. $24x^8$

GUYANA DEFENCE FORCE

137) If $\frac{4}{x} + 4 = 16$, then $x =$

a. $\frac{1}{16}$

b. $\frac{1}{3}$

c. 3

d. 48

138) ABC is a right-angled triangle, $AB = 8$ cm, and angle $ACB = 70^\circ$. What is the length of AC?

a. 86.1 cm

b. 8.61 cm

c. 86.1 cm^2

d. 8.51 cm^2

139) $a^{-2} \times a^{-3} \times a^{-1} = ?$

a. $1/a^6$

b. a^{-6}

c. a^6

d. $1/a^{-6}$

GUYANA DEFENCE FORCE

140) $\tan 35^\circ =$

- a. 466
- b. 4.66
- c. 0.466
- d. 46.6

141) $6x/x \times 2x/4 =$

- a. $3x$
- b. $1/3x$
- c. $3x/x$
- d. $3x^2/2x$

142) A car dealer bought a car. He then sold it for \$900,000, making a profit of \$110,000. The profit expressed as a percentage is -----.

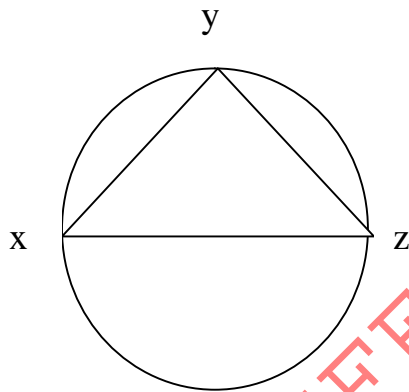
- a. 1.39
- b. 139
- c. 13.9
- d. 100

GUYANA DEFENCE FORCE

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

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

144)



In the above diagram XYZ is a triangle inscribed in a circle, with XZ being the diameter. What is the value of the angle at the centre?

- a. 70°
- b. 180°
- c. 60°
- d. 120°

145) When we reflect an object, the size

- a. reduced
- b. remain the same
- c. is twice the original object
- d. is half the original object

146) $6^x \times 6^y =$

- a. 36^{xy}
- b. 36^{x+y}
- c. 6^{xy}
- d. 6^{x+y}

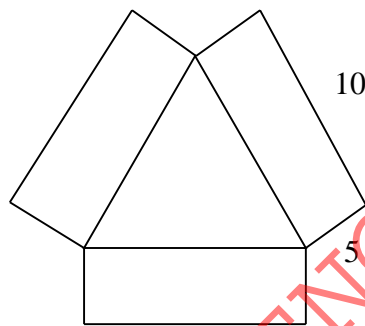
147) If $A = \begin{pmatrix} 4 & 1 \\ 2 & 4 \end{pmatrix}$ and $B = \begin{pmatrix} 3 & 5 \\ 4 & 7 \end{pmatrix}$ then $B - A =$

- a. $\begin{pmatrix} -1 & 4 \\ 2 & 3 \end{pmatrix}$
- b. $\begin{pmatrix} 1 & 4 \\ 2 & 3 \end{pmatrix}$
- c. $\begin{pmatrix} -1 & 4 \\ 2 & -3 \end{pmatrix}$
- d. $\begin{pmatrix} -1 & 4 \\ -2 & 3 \end{pmatrix}$

148) The cube root of 125 is-----

- a. 5
- b. 25
- c. 12.5
- d. 15

149)



All dimensions are in cm

The above diagram is a plan view of a cake pan in the shape of an equilateral triangle. The area of cake pan is 193.5cm^2 . The material to make the cake pan si been sold at \$7.00 per cm^2 . What is the cost of the cake pan?

- a. \$13,545
- b. \$1,354.5
- c. \$13.54
- d.\$135,450

150) A circle has a radius of r cm and a diameter of d cm. The **area (A)** of the circle is -----.

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

151) **ABC** is an equilateral triangle of sides x cm. A vertical line **AD** is drawn from **A** and bisects **BC**, so that **BD = DC**. What is the height of **AD**?

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

152) At a certain guest house, guests are served 30g of meat per meal. What weight of meat(**in grams**) was required for 6 meals to feed 1500 guests?

- a. 270,000
- b. 27,000
- c. 2,700
- d. 270

153) $3y/4 \times 2y/3$

a. $y/2$

b. $2/y^2$

c. $2y/2$

d. $y^2/2$

154) The points A (2, 3), B (4,5) and C (7,3) are vertices of triangle ABC. What is the image of the triangle under the translation $T = (2, -3)$

a. $[A (4,6), B (2,8), C (9,6)]$

b. $[A (4,0), B (2, 2), C (9,0)]$

c. $[A (4,0), B (6,3), C (9,6)]$

d. $[A (4,-6), B (4,-8), C (9,0)]$

155) Triangle PQR has vertices P(-5,-2), Q(-3,-4) and R(-1,-2). What is the image of triangle PQR under a reflection in the Y- axis ?

a. $[P(5, 2), Q (3, 4), R (1,2)]$

b. $[P(-5, -2), Q (-3, -4), R (-1,-2)]$

c. $[P(5, -2), Q (3, -4), R (1,-2)]$

d. $[P(-5, 2), Q (-3, 5), R (-1, 2)]$

156) Simplify the expression $(3x - 2)(x + 1)$

a. $3x^2 - x - 2$

b. $3x^2 - x + 2$

c. $3x^2 + x - 2$

d. $3x^2 + x + 2$

157) $x = -9$ and $y = -10$, then $x \times y$

a. -90

b. 90

c. 19

d. -19

158) A hollow shaft has an outside diameter of 3.23 cm and an inside diameter of 2.5 cm.
Calculate the cross-sectional area of the shaft.

a. 3.286 cm^2

b. 3.286 cm

c. 32.86 cm^2

d. 32.86 cm

159) A grocer offers a discount of $2\frac{1}{2}\%$ to his customers provided their bills are paid within one week. If a bill of \$5,000 is paid within the given period. How much will the customer have to pay?

a. \$48.75

b. \$125

c. \$4875

d. \$1250

160) The **mean** of ten numbers is 58. If the number 40 is added. What is the new **mean**?

a. 56

b. 60

c. 40

d. 56.36

GUYANA DEFENCE FORCE

161) The scale drawing of a school is 50: 1. What distance does 5 cm on the drawing Represent?

a. 380 cm

b. 620 cm

c. 250 cm

d. 750 cm

162. If $3^2 \times 3^x = 3^{16}$, then $x =$

a. 4

b. 8

c. 12

d. 24

GUYANA DEFENCE FORCE

GUYANA DEFENCE FORCE