

MATHEMATICS

GUYANA DEFENCE FORCE

ACADEMIC EDUCATION PROGRAMME

MATHEMATICS

LEVEL 4 PROMOTIONAL EXAMINATION

**Instruction: This Paper has 14 pages and 60 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)  $A = \{1,2,3,4\}$  and Set  $B = \{5,6\}$ . We can say that---

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

2) Fourteen thousand and seven in numerals is-----.

- a. 147
- b. 140007
- c. 1407
- d. 14007

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3) The lowest Common Multiple of the numbers 4, 3 and 12 is----.

a. 17

b. 72

c. 24

d. 12

4)  $(9 + 3) (6 - 5) - 4$

a. 13

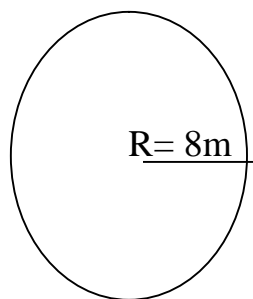
b. 8

c. 24

d. 16

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5)



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

- a. 50.24m
- b. 502.4m<sup>2</sup>
- c. 50.24m
- d. 502.4m<sup>2</sup>

6) The formula  $V = \frac{4}{3} r^3$  is used to find-----.

- a. Volume of a sphere
- b. Volume of a cube
- c. Volume of a pyramid
- d. Volume of a cone

7) 2500 centimetres is equal to \_\_\_\_ kilometres

- a. 2500
- b. 2.5
- c. 250
- d. 0.025

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8) The litre in the metric system is used to measure-

- a. mass
- b. solid
- c. air
- d. liquid

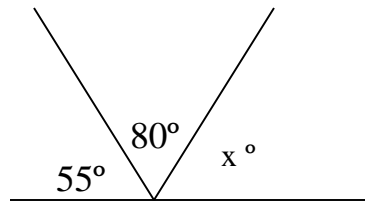
9) The exchange rate of \$Guy to \$B'dos is \$GUY 70 to \$B'dos 1.00. If a tourist changes B'dos\$1500 for \$GUY how much \$GUY will he get?

- a. \$10,500
- b. \$105,000
- c. \$1050
- d. 150,000

10) A man bought a cow for \$9,000, and then sold it for \$7,500. What was his loss (as a percentage) on the transaction?

- a. 16.7 %
- b. 1.67 %
- c. 0.167 %
- d. 167 %

11)



In the diagram above the angle marked  $x^\circ$  is equal to-----.

- a.  $75^\circ$
- b.  $135^\circ$
- c.  $45^\circ$
- d.  $65^\circ$

12) 5,9,3,6,4,8 and 7, arranged in ascending order is-----.

- a. 3,5,4,7,6,8,9
- b. 9,8,7,6,5,4,3
- c. 3,4,5,6,7,8,9
- d. 6,7,8,9,3,4,5

13) The symbol used to indicate an empty set is

- a. €
- b.  $\subset$
- c.
- d. U

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14) If  $x = 5$  and  $y = -3$ , then  $x^2 - y^3 =$

- a. 16
- b. -2
- c. 34
- d. 52

15) Which of the following **cannot** be the probability of an event occurring?

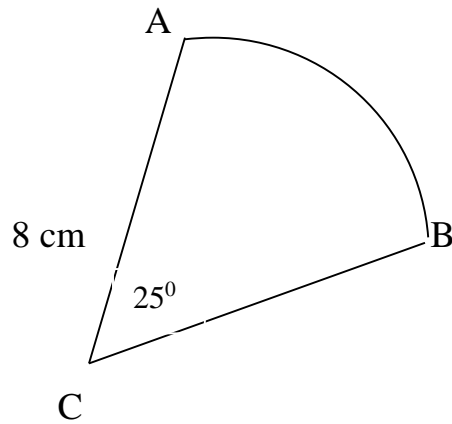
- a. 1
- b.  $\frac{1}{2}$
- c. 2
- d. 0.7

16) 0.875 written as a fraction is-----.

- a.  $\frac{8}{5}$
- b.  $\frac{8}{75}$
- c.  $\frac{5}{85}$
- d.  $\frac{7}{8}$

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17) The diagram below represents the sector of a circle of radius 8cm and sector angle  $25^\circ$ . The length of arc AB is-----.



- a.  $3.489 \text{ cm}^2$
- b.  $3.489 \text{ cm}$
- c.  $34.89 \text{ cm}$
- d.  $34.89 \text{ cm}^2$

18)  $a \times a \times a \times a \times a$  can be written as

- a.  $5a$
- b.  $5 + a$
- c.  $a^5$
- d.  $a \times 5$

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19) A heptagon has \_\_\_\_ sides.

- a. 10
- b. 9
- c. 8
- d. 7

20) 0.027 when written as a percentage is

- a. 270 %
- b. 0.27%
- c. 27%
- d. 2.7%

21) The symbol  $\notin$  is used to represent---

- a. an empty set
- b. a subset
- c. a union
- d. an intersection

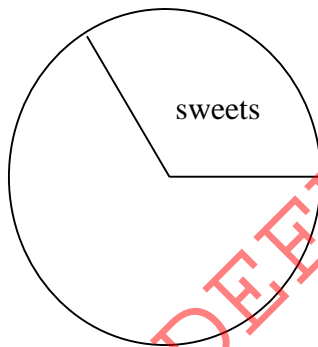


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22) The **area** of a circle of diameter 14 cm (to the closest whole number) Is -----.

- a. 15.4cm<sup>2</sup>
- b. 154cm<sup>2</sup>
- c. 15cm<sup>2</sup>
- d. 0.154 cm<sup>2</sup>

23) On the chart below the part marked “ SWEETS” is called



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

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24)  $11001_2$  written in base 10 is-----.

- a.  $25_{10}$
- b.  $25_2$
- c.  $25_4$
- d.  $25_8$

25)  $15/45$  written as a ratio in its lowest form is-----.

- a. 5:15
- b. 1: 3
- c. 3:9
- d. 15:45

26) The product of  $9a$  and  $7a$  is-----.

- a.  $63a$
- b.  $63+a^2$
- c.  $63+a$
- d.  $63a^2$

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27) The line that divides a circle into **two equal parts** is called a

- a. chord
- b. radius
- c. diameter
- d. bisector

28) A plane geometrical figure that has 8 sides is called

- a. heptagon
- b. pentagon
- c. octagon
- d. rectangle

29) During a sale, an item marked \$1700 has a 10% discount at the time of purchase. What is the final cost of the item?

- a. \$1530
- b. \$153.0
- c. \$15.30
- d. \$1870

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30)  $\frac{1}{3}$  written as a percentage is-----.

- a. 0.333%
- b. 3.33%
- c. 333%
- d. 33.3%

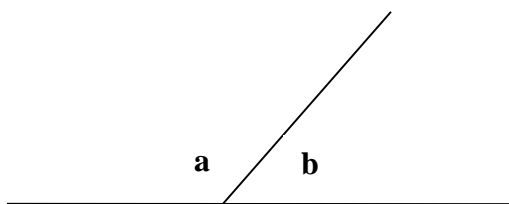
31)  $\frac{1}{2} \times \frac{2}{3} + \frac{1}{4} =$

- a.  $\frac{7}{12}$
- b.  $\frac{4}{9}$
- c.  $\frac{2}{7}$
- d.  $\frac{1}{12}$

32) A pair of shoes is priced at \$12,000 and attract a 16% VAT. How much will a buyer be required to pay for the shoes?

- a. \$10,080
- b. \$1,392
- c. \$13,920
- d. \$12,920

33)



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

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

34) 1.5 kilograms equal ---- grams.

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

35) Bravo scored the following runs in a one - day series: 15, 25, 85, 90, 95. What is his MEDIAN score?

- a. 15
- b. 95
- c. 25
- d. 85

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36) If  $x = 5$  and  $y = -3$ , then  $x^2 + y^3$  is---

- a. - 2
- b. 16
- c. 34
- d. 52

37) The value for 'x' in the equation  $2x + 3 = 11 - 2x$  is-----.

- a. 8
- b. 14
- c. 6
- d. 2

38) In the metric system the unit used for measuring **mass** is the

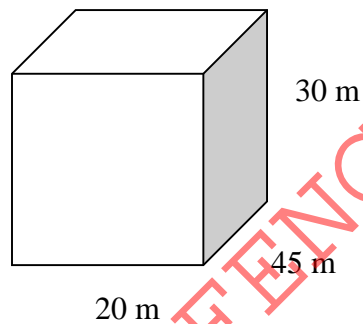
- a. litre
- b. metre
- c. grams
- d. pascal

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39)  $I = PRT/100$ . Making R the subject of the formula, R =

- a.  $100I/PT$
- b.  $100/PTI$
- c.  $100P/TI$
- d.  $PT/100I$

40) What is the volume of the diagram below (which is not drawn to scale)?



- a.  $2700\text{m}^3$
- b.  $27,000\text{m}^3$
- c.  $270\text{m}^3$
- d.  $27.00\text{m}^3$

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41) A piece of machinery purchased in 2000 for \$900,000 has depreciated at the rate of 5% per year. What is the value at the end of 2002?

- a. \$812,250
- b. \$81,250
- c. \$ 8122.5
- d. \$812.250

42) What is the volume of a soccer ball of diameter 8 cm?

- a.  $26.79 \text{ cm}^3$
- b.  $267.95 \text{ cm}^2$
- c.  $267.95 \text{ cm}^3$
- d.  $26.79 \text{ cm}^2$

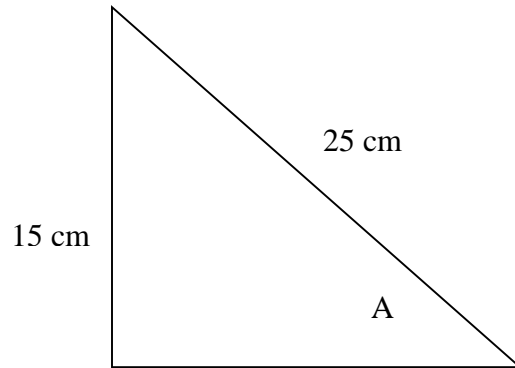
43) What is the value of 'x' in the equation,  $9x^2 + 30x + 16 = 0$ ?

- a. -26.6; -0.67
- b. 26.7; 0.67
- c. 2.67; 0.67
- d. -2.67; -0.67



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44) In the RIGHT- ANGLED triangle below, the angle marked 'A' can be found by using the trigonometric ratio -



- a. tangent
- b. sine
- c. cosine
- d. cotangent

45) If  $x = 2$ ,  $y = -5$  and  $z = 1$ , then  $4x^2 y z =$

- a. 80
- b. 70
- c. -70
- d. -80

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46) The factors of  $x^2 + 11x + 24$  is

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

47) A man, lying on top of a hill and looking out at sea, sees a ship 30 m from the base of the hill. The angle formed between the man's line of sight and the horizontal is  $35^\circ$ . Calculate the height of the hill.

- a. 21 m
- b. 2.1 m
- c. 0.21 m
- d. 210 m

48) A motorist, driving at a constant speed, travels a distance of 180 km using 40 litres of fuel. How far will she likely travel with 65 litres of fuel?

- a. 292.5 km
- b. 2925 km
- c. 29.25 km
- d. 2.925 km

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49) How many litres of water would be held in a container whose volume is  $36\text{cm}^3$ ?

- a. 0.036
- b. 0.360
- c. 36.00
- d. 3600

50) Roberta is three times as old as Loraine who is  $x$  years old. 3 years from now their ages will respectively be

I.  $3x + 3$     II.  $3/x + 3$

III.  $x + 3$     IV.  $x/3$

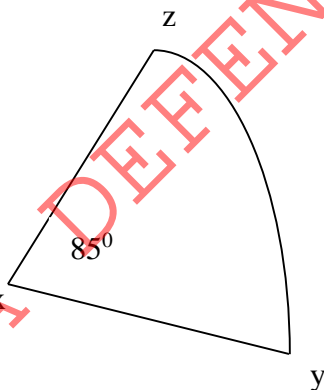
- a. I and II
- b. I and III
- c. II and III
- d. II and IV

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51) A washing machine is bought on hire purchase with a deposit of \$4500 and 36 monthly payments of \$1000 each. Calculate the final purchase price of the machine.

- a. \$36000
- b. \$40500
- c. \$44500
- d. \$38200

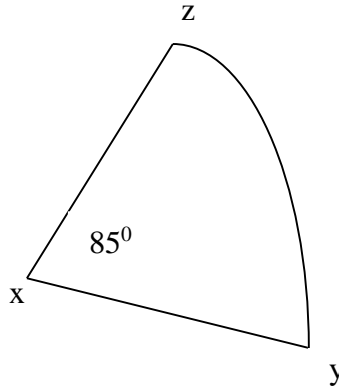
52) The diagram below (**not draw to scale**) represents a blade of a fan in the shape of a sector  $xyz$  of a circle.  $x$  is centre,  $xy = 15$  m and angle  $yxz = 85^\circ$ . (take  $\pi = 3.142$ )



What is length of the arc  $yz$ ?

- a. 22.24m
- b. 28.44m
- c. 18.51m
- d. 30.34m

- 53) The diagram below (**not draw to scale**) represents a blade of a fan in the shape of a sector  $xyz$  of a circle.  $x$  is centre,  $xy = 15$  m and angle  $yxz = 85^\circ$ . (take  $\pi = 3.142$ )



What is the area of the sector?

- a.  $152.43\text{m}^2$
- b.  $160.53\text{m}^2$
- c.  $166.81\text{m}^2$
- d.  $147.35\text{m}^2$

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54) An employee's gross income is \$125,000 per month. After the following deductions are made,(shown below), the remainder of his income is taxed at 33.3%.

	Deductions
Free pay	\$25,000
N.I.S	\$7,500
Personal Insurance	\$2,000
Wife Allowance	\$10,000
Children Allowance (3)	\$15,000
Mortgage	\$3,000
Pension Scheme	\$1,500
Credit Union	\$3,000

What is the total deduction of the employee ?

- a. \$13,000
- b. \$15,000
- c. \$17,000
- d. \$19,000

MATHEMATICS

55) An employee's gross income is \$125,000 per month. After the following deductions are made,(shown below), the remainder of his income is taxed at 33.3%.

	Deductions
Free pay	\$25,000
N.I.S	\$7,500
Personal Insurance	\$2,000
Wife Allowance	\$10,000
Children Allowance (3)	\$15,000
Mortgage	\$3,000
Pension Scheme	\$1,500
Credit Union	\$3,000

What is the taxable income of the employee?

- a. \$60,000
- b. \$30,000
- c. \$58,000
- d. \$78,000

MATHEMATICS

56)

	Deductions
Free pay	\$25,000
N.I.S	\$7,500
Personal Insurance	\$2,000
Wife Allowance	\$10,000
Children Allowance (3)	\$15,000
Mortgage	\$3,000
Pension Scheme	\$1,500
Credit Union	\$3,000

What is the tax paid by the employee?

- a. \$21,240
- b. \$17,320
- c. \$14,325
- d. \$19,314

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57)

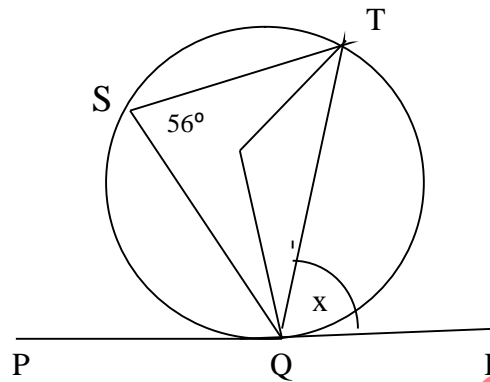
	Deductions
Free pay	\$25,000
N.I.S	\$7,500
Personal Insurance	\$2,000
Wife Allowance	\$10,000
Children Allowance (3)	\$15,000
Mortgage	\$3,000
Pension Scheme	\$1,500
Credit Union	\$3,000

What is the employee's net income?

- a. \$75,842
- b. \$90,020
- c. \$65,350
- d. \$88,686

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58) What is the value of angle  $x$  in the diagram below.



- a.  $48^\circ$
- b.  $56^\circ$
- c.  $60^\circ$
- d.  $50^\circ$

59) Solve the equation  $5x^2 + 3x - 7 = 0$

- a.  $x = 0.9, x = -1.5$
- b.  $x = 1.45, x = 2.12$
- c.  $x = 3.04, x = 2.04$
- d.  $x = 0.43, x = 1.14$

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60) Simplify  $(4x + 6y)(2x - 3y)$

a.  $8x^2 - 18y^2$

b.  $5x^2 - 12y^2$

c.  $6x^2 - 6y^2$

d.  $3x^2 - 4y^2$

61) The universal  $U = \{1,2,3,4,5,6,7,8,9\}$  and Set  $A = \{1,3,5,7,9\}$ . The complement of set A is----.

a.  $\{1,3,5,7,9\}$

b.  $\{1,2,3,4,5,6,7,8,9\}$

c.  $\{4,6,8\}$

d.  $\{ \}$

62) The Roman Numeral XVIII, written in natural numbers is---

a. 18

b. 81

c. 17

d. 71

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63)  $(2 \frac{2}{3})^2$  is equal to-

- a.  $2 \frac{4}{9}$
- b.  $4 \frac{4}{9}$
- c.  $\frac{4}{9}$
- d. 12

64)  $(9 - 3)(6 + 5) - 2$

- a. -132
- b. -66
- c. 132
- d. 64

65) What are the next two numbers in the sequence 45, 42, 37, 30?

- a. 21 and 12
- b. 21 and 10
- c. 21 and 11
- d. 21 and 9

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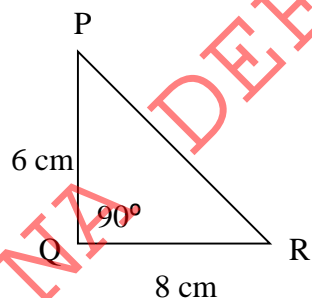
66) The formula  $V = \frac{1}{3} \times \text{area of base} \times \text{perpendicular height}$  is used to find-

- a. Volume of a triangle
- b. Volume of a cylinder
- c. Volume of a pyramid
- d. Volume of a cone

67) 0.2504 corrected to three significant figures --

- a. 2.500
- b. 0.25
- c. 0.250
- d. 250

68)



What is the area of the above triangle?

- a. 24 cm<sup>2</sup>
- b. 48 cm
- c. 24 cm
- d. 48 cm<sup>2</sup>

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69) The length of a rectangle is 10cm more than its width. If the perimeter is 140cm, then its length **in cm** is-----.

- a. 14
- b. 30
- c. 40
- d. 65

70) A bookseller buys a book for \$900. His advertised selling price is 20% higher, but he allows schools a discount of 10%. What is the selling price to schools?

- a. \$910
- b. \$930
- c. \$972
- d. \$990

71) By selling a bus for \$1,500,000 a motor vehicle dealer experienced a 30% loss. What was his buying price?

- a. \$2,142,857
- b. \$21,428,57
- c. \$214,2857
- d. \$2,142.857

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72) Mary is  $x$  years old and Susan is 3 times as old as Mary. Susan's age next year will be ---

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

73) If  $a^2 - b^2 = a(a - b)$ , then  $\frac{a+b}{a-b} =$

- a.  $-4$
- b.  $-2$
- c.  $4$
- d.  $2$

74) The tension in an elastic string is directly proportional to its extension.

If the extension is 15cm when the tension is 20kgs. What is the tension when the extension is 12 cm?

- a. 16kgs
- b. 9kgs
- c. 36kgs
- d. 20kgs

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75) What is the size of an **exterior angle** of a regular **octagon**?

- a.  $36^\circ$
- b.  $54^\circ$
- c.  $60^\circ$
- d.  $45^\circ$

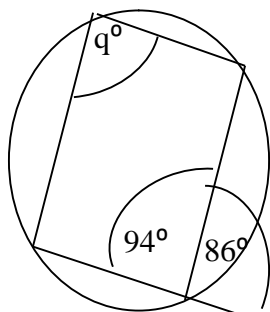
76) The probability of a worker getting the flue is 0.01, how many workers out of a work force of 1500 may be expected to get flue?

- a. 2
- b. 150
- c. 15
- d. 51

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77)



In the diagram above the value of angle  $q^\circ$  is

- a.  $86^\circ$
- b.  $94^\circ$
- c.  $180^\circ$
- d.  $90^\circ$

78) Which of the following figures has (have) only rotational symmetry?

- I. isosceles    II. kite    III. isosceles trapezium    IV. parallelogram

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

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

- a. (-5, 4)
- b. (-5, 0)
- c. (-3, 4)
- d. (5,4)

80) The best approximation of  $\frac{50.1 \times 189.5}{0.65}$

- a. 14.61
- b. 146.1
- c. 1461
- d. 14606

81) How many **squares** of sides 2cm is needed to cover a cube of edges 6cm?

- a. 216
- b. 108
- c. 54
- d. 162

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82) A factory starts work at 08:30 hrs and ends at 17:00 hrs. There is a lunch-hour and a 15- minutes afternoon break. How much time is spent working?

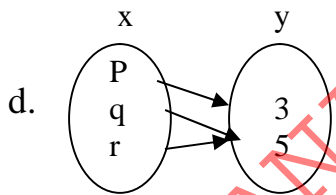
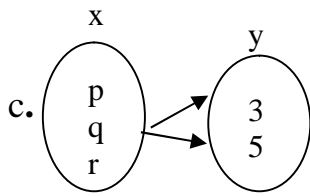
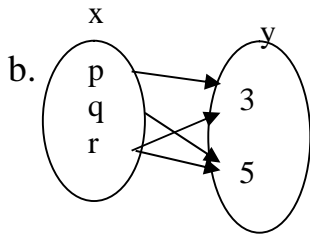
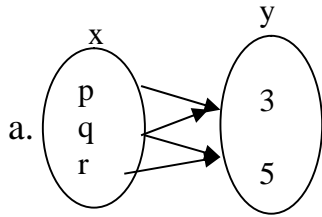
- a. 7 hrs 15 mins
- b. 7 hrs 35 mins.
- c. 7 hrs 45mins.
- d. 7 hrs 50 mins.

83) During a sale, a shopkeeper allows a 15% discount on the marked price for all items. What will a customer pay for a pair of pants with a marked price of \$800?

- a. \$120
- b. \$92.20
- c. \$920
- d. \$680

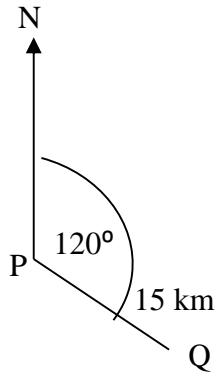
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84) Which of the following mappings represents a function?



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85)

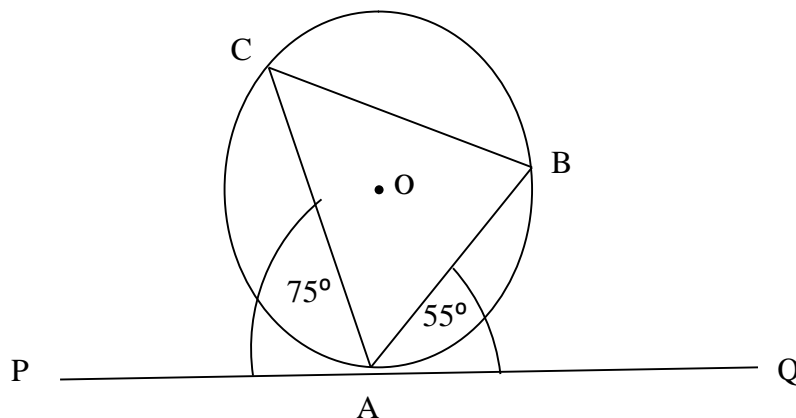


A ship travels from a port P to a port Q 15km away on a bearing of  $120^\circ$ . How far south of port P is port Q?

- a.  $15\text{km} \times \text{sine } 60^\circ$
- b.  $15\text{km} \text{ sine } 30^\circ$
- c.  $15\text{km} \times \text{cosine } 60^\circ$
- d.  $15\text{km} \times \text{cosine } 30^\circ$

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86)



In the diagram above, PAQ is a tangent to the circle O. Given that angle PAC =  $75^\circ$  and angle QAB =  $55^\circ$ , then angle ABC =

- a.  $55^\circ$
- b.  $50^\circ$
- c.  $75^\circ$
- d.  $35^\circ$

87) A triangular field has sides  $4y$ ,  $3y$ , and  $2y$  metres long. Its perimeter is 450 metres. The longest side is-----.

- a. 150 metres
- b. 200 metres
- c. 250 metres
- d. 300 metres

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88) A bag contains 60kgs of potatoes. If 14.5kgs of the potatoes are sold, what percentages of the potatoes are left?

- a. 45.5
- b. 65.5
- c. 5.8%
- d. 24.2

89) A ship sailing on a bearing of  $135^\circ$  is travelling-----.

- a. north-east
- b. north-west
- c. south-west
- d. south- east

90) Express in standard form, 0.0000678

- a.  $6.78 \times 10^{-5}$
- b.  $6.78 \times 10^{-4}$
- c.  $6.78 \times 10^{-6}$
- d.  $67.8 \times 10^{-3}$

MATHEMATICS

91) A company gives a 10% discount on the marked price of articles. Value added tax of 15% is charged on the sale price. What would a customer pay for an article marked \$4,500?

- a. \$5175
- b. \$51.75
- c. \$4657.5
- d. \$4500

92) The factors of  $6x^2 + 11x - 10$  is-----.

- a.  $(2x + 5)(3x + 2)$
- b.  $(2x + 5)(3x - 2)$
- c.  $(6x + 5)(x - 2)$
- d.  $(2x - 5)(3x - 2)$

93) A computer valued at \$80,000, depreciates at the rate of 10% per annum. What is its book value two years later?

- a. \$72,000
- b. \$79,200
- c. \$88,000
- d. \$64,800



MATHEMATICS

94) Sine  $135^\circ$  has the same value as

- a. sine  $45^\circ$
- b. - cosine  $45^\circ$
- c. - sine  $45^\circ$
- d. tangent  $45^\circ$

95) Which of the following would be most suitable for comparing a country's budget over a five – years period?

- a. frequency polygon
- b. line graph
- c. pie chart
- d. chronological bar- chart

96) Given that  $m + n = 4m - 2n$ , then  $62 =$

- a. 28
- b.  $20 + 4$
- c. 20
- d.  $4 + 20$

MATHEMATICS

97) The following scores (out of a maximum score of 20 points) were obtained by eight (8) marksmen in a shooting competition: 0, 10, 15, 9, 18, 5, 3, 17, 4.

The **median** score is-----.

a. 10

b. 9

c. 15

d. 17

98) The set of numbers which are **greater than** -2 but **less than** 8 may be written as

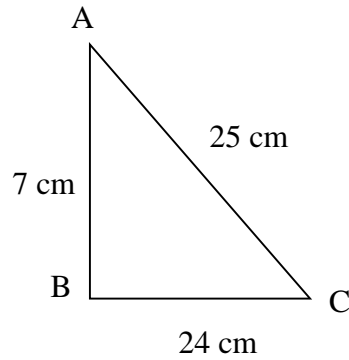
a.  $(x: -2 \leq x \leq 8)$

b.  $(x: -2 > x < 8)$

c.  $(x: -2 < x < 8)$

d.  $(x: -2 \leq x \leq 8)$

99)



In the diagram above, ABC is a right- angled triangle. What is the value of **sine A**?

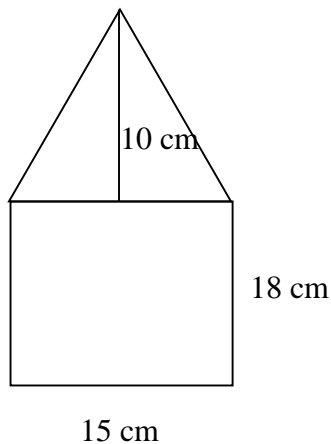
- a.  $7/25$
- b.  $24/7$
- c.  $25/24$
- d.  $24/25$

100)  $8x - 4y - 4x + 6y =$

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

MATHEMATICS

101)



In the figure above ( not drawn to scale), consist of a triangle of height 10 cm, resting on a rectangle of dimensions 18 cm by 15 cm. What is the total area of the compound figure?

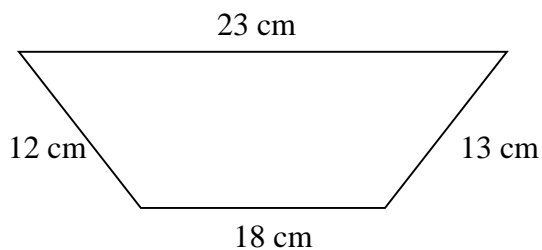
- a. 345 cm
- b. 345 cm<sup>2</sup>
- c. 208 cm
- d. 280 cm<sup>2</sup>

102. If  $g(x) = \frac{3x - 3}{5}$ , then  $g(-5) =$

- a. - 18/5
- b. 18/5
- c. 12/5
- d. -12/5

MATHEMATICS

103)



What is the perimeter of the trapezium above?

- a.  $66 \text{ cm}^2$
- b. 138 cm
- c. 66 cm
- d.  $138 \text{ cm}^2$

104) The number of subsets possible with three (3) elements is----.

- a.  $n^3$
- b.  $3^2$
- c.  $3n$
- d.  $2^3$

105) An alloy consisting of a mixture of 4 parts platinum to 5 parts gold. How much platinum should be mixed with 50 kg of gold to obtain an alloy in the same proportion?

- a. 62.5 kg
- b. 40 kg
- c. 25 kg
- d. 50 kg

MATHEMATICS

106) A woman bought a motorcycle for \$75,200. After one year, it was worth \$68,100. Its depreciation, **as a percentage** of the selling price was.

- a. 94
- b. 9.4
- c. 0.94
- d. 9.04

107) In a container, there are 5 red balls, 4 yellow balls and 3 blue balls. If one of the balls is chosen at random, what is the probability that it is **not** yellow?

- a.  $\frac{3}{4}$
- b. 1
- c.  $\frac{1}{4}$
- d.  $\frac{1}{8}$

108)  $4p/5x + 5p/6y =$

- a.  $\frac{4p + 5p}{5x + 6y}$
- b.  $\frac{20p + 30xy}{30xy}$
- c.  $\frac{24py + 25px}{30xy}$
- d.  $\frac{20p}{3xy}$

MATHEMATICS

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

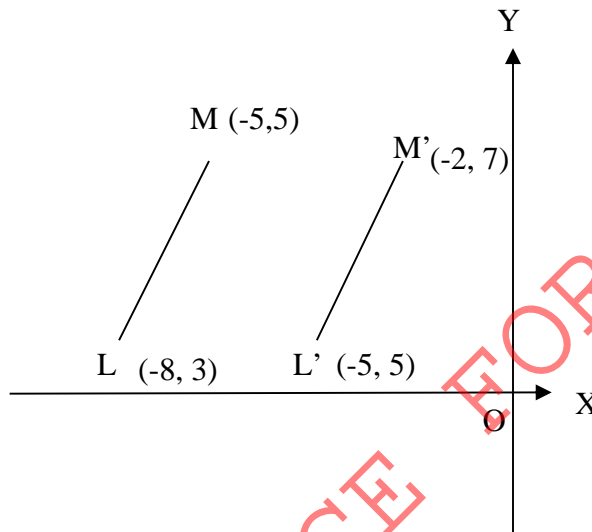
- a. 1: 200
- b. 1: 2000
- c. 1 : 20000
- d. 1 : 200000

110) Two fair dice are tossed. What is the probability of scoring 7?

- a.  $\frac{1}{4}$
- b.  $\frac{1}{6}$
- c.  $\frac{1}{18}$
- d.  $\frac{1}{36}$

GUYANA DEFENCE FORCE

111)



The translation in which LM is mapped onto L'M' can be represented by the matrix.

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

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

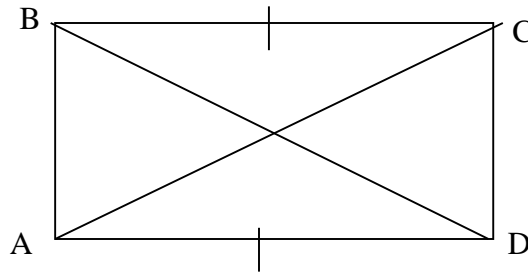
c.  $\begin{pmatrix} 3 \\ 2 \end{pmatrix}$

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



MATHEMATICS

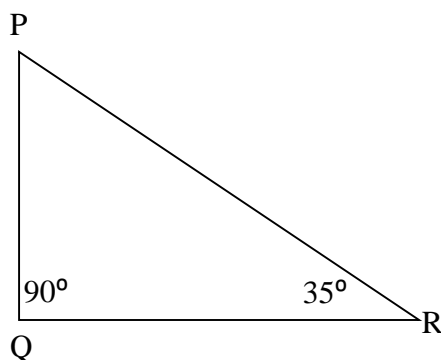
112) In the rectangle below (not drawn to scale), the length of the diagonals are 10 cm and  $AD = BC = 8$  cm. The altitude of the triangle BCD is-----.



- a.  $6\text{cm}^2$
- b. 6cm
- c. 8cm
- d. 64cm

GUYANA DEFENCE FORCE

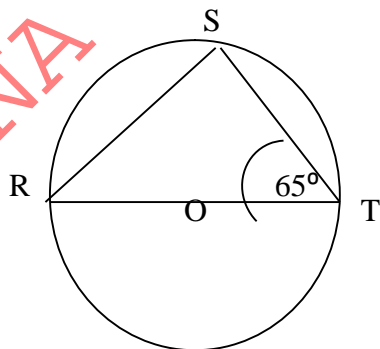
113)



The triangle PQR above is a right-angled triangle. Angle PRQ = 35° and QR = 35 cm. The length of PQ is-----.

- a.  $35 \sin 35^\circ$
- b.  $35/\sin 35^\circ$
- c.  $35/\tan 35^\circ$
- d.  $35 \tan 35^\circ$

114) In the figure below. ROT is a diameter of the circle with centre O. Angle STO = 65°, what is the size of angle SRT?



- a. 35°
- b. 25°
- c. 45°
- d. 15°

MATHEMATICS

115) If  $v = u + at$ , then  $t$  is equal to-

- a.  $v - u/a$
- b.  $u - v/a$
- c.  $vu/a$
- d.  $vu - a$

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

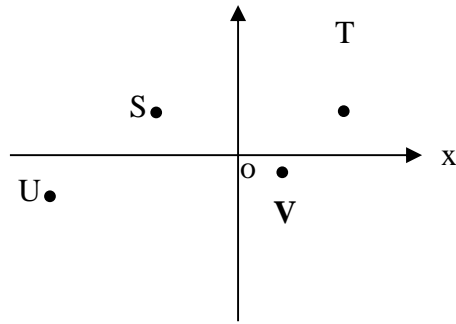
- a.  $x/y$
- b.  $x/y^2$
- c.  $x^2y^{-2}$
- d.  $x^2/y$

117) The volume of a cuboid whose edges are 6cm, 7cm and 8cm is-----.

- a. 336cm
- b.  $336 \text{ cm}^2$
- c.  $336 \text{ cm}^3$
- d.  $33.6 \text{ cm}^3$

y

118)



In the figure above, the point for which the **x-coordinate** is negative and the **y-coordinate** is positive is-----.

- a. U
- b. S
- c. V
- d. T

119)  $\frac{5}{6}x + \frac{3}{6}x =$

- a.  $\frac{8}{6}x$
- b.  $\frac{8}{36}x$
- c.  $30x + \frac{18x}{6}$
- d.  $\frac{8}{12}x$

120) The fractions  $\frac{3}{8}$ ,  $\frac{1}{3}$ ,  $\frac{1}{5}$ ,  $\frac{1}{2}$ , written in descending order of magnitude =

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

121) If Set A = {1,2,3,4} and Set B= {2,3}we can say that:

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

122) Seven thousand and fourteen in numerals is----.

- a. 714
- b. 700014
- c. 7014
- d. 70014

MATHEMATICS

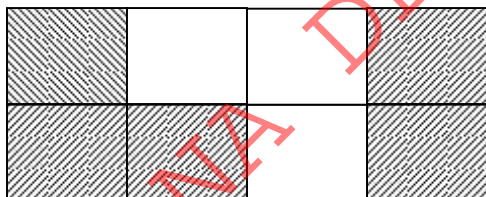
123) The lowest Common Multiple of the number 2, 3 and 12 is-----.

- a. 17
- b. 72
- c. 24
- d. 12

124)  $9 + 3 \times 6 - 5 =$

- a. 23
- b. 14
- c. 22
- d. 24

125)



In the above diagram the sum of the **unshaded** squares are-----.

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

MATHEMATICS

126) The formula  $V = r^2h$  is used to the --

- a. volume of a cylinder
- b. volume of a cube
- c. volume of a pyramid
- d. volume of a prism

127) 2.5 kilometres is equal to \_\_\_\_ metres.

- a. 25000
- b. 250
- c. 2500
- d. 25

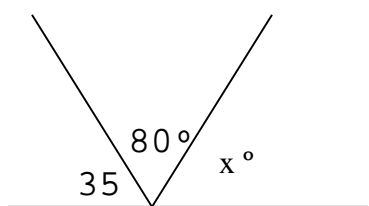
128) The exchange rate of \$ Guy to \$US is \$ Guy 200 to \$ US 1.00. If a tourist changes US\$1500 for \$Guy. How much \$ GUY will she get?

- a. \$30,000
- b. \$300,000
- c. \$3000
- d. \$3000,000

129) A man bought a cow for \$6,000, and then sold it for \$6,480. What was his percentage profit on the transaction?

- a. 8
- b. 83
- c. 5
- d. 500

130)



In the above diagram the angle marked  $x^\circ =$

- a.  $75^\circ$
- b.  $55^\circ$
- c.  $65^\circ$
- d.  $45^\circ$

131) In Statistics another word for **average** is-----.

- a. mode
- b. median
- c. mean
- d. modal



MATHEMATICS

132) The symbol used to indicate the union of two Sets is-----.

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

133) In the Set of ordered pairs, (2,4),(3,6), (4,8), and (5,10), the Domain is-----.

- a. (4,6,8,10)
- b. (2,3,4,5)
- c. (4,3,8,5)
- d. (2,6,4,5)

134) The exact value of  $2^6$  is-----.

- a. 64
- b. 32
- c. 12
- d. 8

MATHEMATICS

135) The fraction  $\frac{5}{8}$  written as a decimal is-----.

- a. 875
- b. 8.75
- c. 87.5
- d. 0.875

136) On the face of a clock, the long hand is at 12 and the short hand is at 4. What is the sector angle between the two hands of the clock?

- a.  $90^\circ$
- b.  $120^\circ$
- c.  $100^\circ$
- d.  $20^\circ$

137)  $Y \times Y \times Y \times Y \times Y$  can be written as—

- a.  $5y$
- b.  $5+y$
- c.  $y^5$
- d.  $y \times 5$

MATHEMATICS

138) A Nonagon has \_\_\_\_ sides.

- a. 10
- b. 9
- c. 8
- d. 7

139) 0.016 when written as a percentage is-----.

- a. 160
- b. 0.16
- c. 16
- d. 1.6

140) In set theory the empty set is represented by

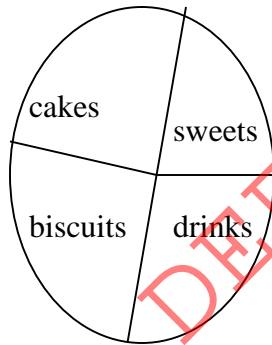
- a.  $\notin$
- b.  $\subset$
- c. U
- d.

MATHEMATICS

141) The circumference of a circle of diameter 14cm (to the closest whole number) is-----.

- a.  $44\text{cm}^2$
- b. 44cm
- c. 4cm
- d.  $4\text{cm}^2$

142) On the chart below the part marked “SWEETS” is called a--



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

MATHEMATICS

143) -4.5 can be described as-

- a. an irrational number
- b. a real number
- c. a rational number
- d. a repeated number

144) The ratio 15:45 written as a fraction in its lowest term is-----

- a.  $\frac{5}{15}$
- b.  $\frac{1}{3}$
- c.  $\frac{3}{9}$
- d.  $\frac{15}{45}$

145) The sum of  $9a + 7a$  is-----

- a.  $16a$
- b.  $16+a^2$
- c.  $16+a$
- d.  $16a^2$

MATHEMATICS

146) The line that divides a circle into two equal parts is called a-----

- a. chord
- b. radius
- c. diameter
- d. bisector

147) A plane geometrical figure that has 5 sides is called a ----

- a. heptagon
- b. pentagon
- c. kite
- d. rectangle

148) During a sale, an item marked \$1700 has a 5% discount. What is the final cost of the item?

- a. \$1785
- b. \$1660
- c. \$1615
- d. \$85

MATHEMATICS

149)  $\frac{7}{8}$  written as a percentage is-----.

- a. 0.875
- b. 8.75
- c. 875
- d. 87.5

150)  $\frac{1}{2} \times \frac{2}{3} + \frac{1}{4} =$

- a.  $\frac{7}{12}$
- b.  $\frac{4}{9}$
- c.  $\frac{2}{7}$
- d.  $\frac{2}{12}$

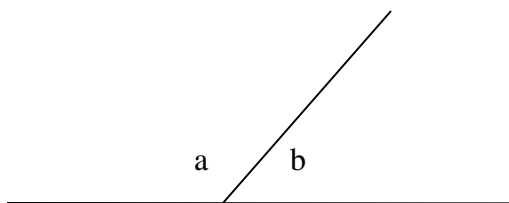
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MATHEMATICS

151) A pair of shoes is priced at \$15,000 and attracts a 16% VAT. What is the cost of the pair of shoes when purchased?

- a. \$12,600
- b. \$12,000
- c. \$17,400
- d. \$2400

152)



In the above diagram above, the angles marked a and b are ---- angles.

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

153) 1 tonne equal---- kilograms.

- a. 5000Kgs
- b. 1000Kgs
- c. 25000Kgs
- d. 75000Kgs



MATHEMATICS

154) A batsman scored the following runs in a one day series:  
15, 85, 99, 25, 0. What is his MEAN score?

- a. 0.448
- b. 448
- c. 4.48
- d. 44.8

155)  $X = 3$  is a \_\_\_\_\_ line drawn on the x-co-ordinate.

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

156) value for "x" in the equation  $2x + 3 = 11$  is---

- a. 7
- b. 16
- c. 6
- d. 4

MATHEMATICS

157) In the metric system the unit used for measuring volume is the—

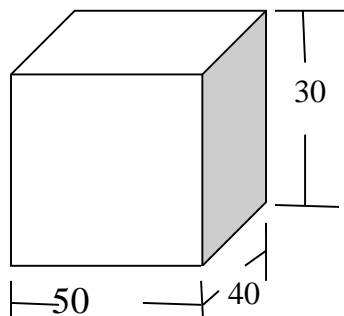
- a. litre
- b. metre
- c. grams
- d. pascal

158) The formula  $I = PRT/100$  is used to calculate:

- a. Simple Interest
- b. Compound Interest
- c. Applied Interest
- d. Accrued Interest

GUYANA DEFENCE FORCE

159)



The figure above, (not drawn to scale) represents a fish tank in the shape of a cuboid of height 30 cm. What is the volume of the tank?

- a.  $600 \text{ cm}^3$
- b.  $60,000 \text{ cm}^3$
- c.  $6000 \text{ cm}^3$
- d.  $60.00 \text{ cm}^3$

160) A car purchased in 2005 for \$900,000 is depreciated at a rate of 10%.  
It's value at the end of 2008 is----.

- a. \$656,100
- b. \$65,610
- c. \$6561.00
- d. \$656.10

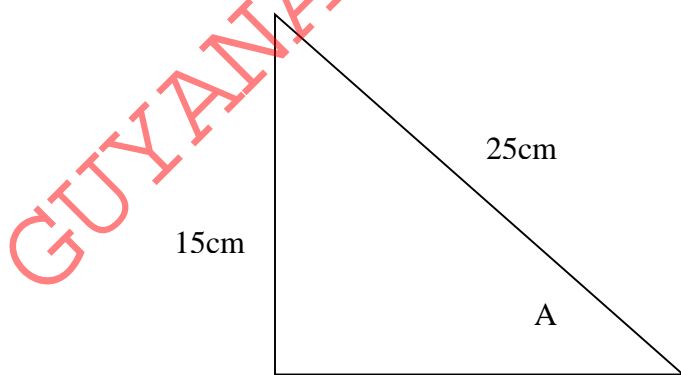
161. What is the volume of a soccer ball of radius 7 cm?

- a.  $1.436 \text{ cm}^3$
- b.  $14.36 \text{ cm}^3$
- c.  $1436 \text{ cm}^3$
- d.  $143.6 \text{ cm}^3$

162. What is the value of 'x' in the equation,  $9x^2 + 24x + 16 = 0$ ?

- A) 13.3      B) 133      C) 0.133      D) 1.33

163. In the RIGHT- ANGLED triangle below, the angle marked 'A' can be found by using the trigonometric ratio



- A) tangent      B) sine      C) cosine      D) cotangent

MATHEMATICS

164.  $x = 2$ ,  $y = 5$  and  $z = 0$ , then  $4xyz = ?$

- A) 40                      B) 7                      C) 70                      D) 0

165. A girl bought an article for  $p$  dollars and then sold it for  $y$  dollars. An expression for her profit is

- A)  $(p - y)$  dollars    B)  $(y - p)$  dollars    C)  $(p + y)$             D)  $(py)$  dollars

166. A housewife pays for her electricity bill by means of a fixed rate of \$320 and \$30 for each unit of electricity used (kwh). How much will she pay for using 50 kwh of electricity?

- A) \$16000                B) \$1500                C) \$9600                D) \$1820

167. A motorist driving at a constant speed travels a distance of 180 km in two and a half hour. What is his average speed?

- A) 72 km/h              B) 90 km/h              C) 60 km/h              D) 75 km/h

168. A book has a marked price of \$5000. VAT is charged at 16% of the marked price. The book cost

- A) \$5000                B) \$3800                C) \$5800                D) \$4200

169. Robert is nine times as old as Lawrence who is  $x$  years old. Five years from now their ages will respectively be

- I.  $9x + 5$                       II.  $9/x + 5$

MATHEMATICS

III.  $x + 5$

IV.  $x/5$

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

170. A salesman is paid a salary of \$3,200 per month and a commission of 12% on all sales above \$5000. What is the salesman gross salary if his sales for a particular month was \$20,500?

- A) 5,006      B) 5,000      C) 5,060      D) 5,600

Charges for electricity in a certain Caricom country are made up of a fixed fuel charge of 50 cents per unit and an energy charge compute under **three** schemes as follows:

Scheme A. Homes	20 cents per unit
Scheme B. Schools	25 cents per unit
Scheme C. Business places	35 cents per unit

The meter reading of a certain business place reads as follows:

Meter reading (units)		Units Used	Scheme	Energy Charge (\$)	Fuel Charge (\$)
Previous	Present				
21439	22439		C		

171. What is the energy charge?

MATHEMATICS

- A) \$8500      B) \$850      C) \$85      D) \$8.50

172. How much simple interest is due on a loan of \$120,000 for 2 years if the annual rate of interest is  $5\frac{1}{2}$  per cent?

- A) \$12,000      B) \$13,200      C) \$26,400      D) \$33,000

173. The Guyana Sewage and Water Commission charge \$500 per month for the meter rent, \$2.50 for the first 1000 litres and \$ 0.5 for each additional 100 litres. What is the total bill for 2,500 litres used in one month.

- A) \$2,550      B) \$275      C) \$27.50      D) \$2750

174. 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 volume in  $\text{cm}^3$ .

- A)  $\frac{8x}{9}$       B)  $\frac{16x^3}{9}$       C)  $\frac{8x^3}{3}$       D)  $\frac{17x}{3}$

175. If  $x/y = 1/5$ , which of the following is true?

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

176. After 18% of a woman's salary had been deducted for tax she received \$4,345. The amount of money she paid in tax was

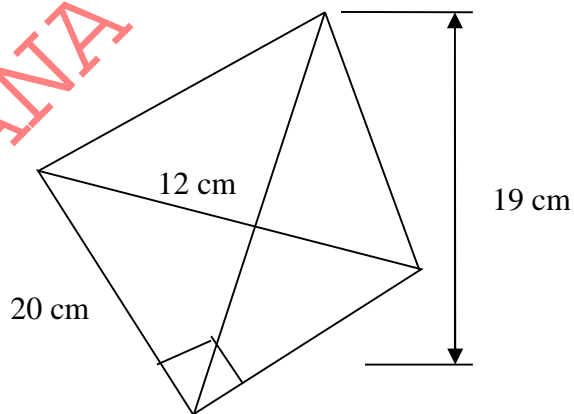
- A) \$953.78      B) \$ 95.37      C) \$95.38      D) \$9.54

177. Solve the equation  $y = x + \frac{1}{3}$  when  $x = \frac{3}{4}$

- A)  $\frac{13}{4}$       B)  $3\frac{7}{12}$       C)  $2\frac{7}{12}$       D)  $\frac{14}{7}$

MATHEMATICS

178. If  $x \ y$  means  $4x - 3y$ , then  $5 \ 2 =$
- A) 5                      B) 26                      C) - 26                      D) 14
179. The statistical average that makes use of all the data in its calculations is called the
- A) mean                      B) mode                      C) median                      D) lower quartile
180. The volume of a **cube** is  $512 \text{ cm}^3$ . The area of one of its **plane faces** is
- A)  $8 \text{ cm}^2$                       B)  $16 \text{ cm}^2$                       C)  $24 \text{ cm}^2$                       D)  $64 \text{ cm}^2$
181. The **total surface area** of the figure below is.



- (A)  $574.4 \text{ cm}^2$                       (B)  $574.4 \text{ cm}$                       (C)  $57.44 \text{ cm}$                       (D)  $57.44 \text{ cm}^2$



MATHEMATICS

182.  $20^2 - 16^2 =$

- (A) 10                      (B) 12                      (C) 14                      (D) 16

183.  $4/3x - 2/2y =$

- (A)  $2/6xy$                       (B)  $2/3x - 2y$                       (C)  $8y - 6x / 6xy$                       (D)  $2/ 6xy$

184. The total surface area of a cube with sides of length 6 cm is

- (A) 216 cm                      (B) 21.6 cm<sup>2</sup>                      (C) 21.6 cm                      (D) 216 cm<sup>2</sup>

185. If  $R/S = 4/5$ , which of the following is **true**

- (A)  $R - 5 = S - 4$                       (B)  $5R = 4S$                       (C)  $4R = 5S$                       (D)  $R + 5 = S + 4$

186. The cost of posting a parcel weighting 10 kg is \$250. What is the cost of posting a parcel weighting 5 kg?

- (A) \$15                      (B) \$1.50                      (C) \$155                      (D) 150

187. Given that  $y = x^4$  and  $Z = y^3$ , then  $Z =$

- (A)  $x^{12}$                       (B)  $x^7$                       (C)  $x$                       (D)  $x^0$

188. After 25 % of a woman's salary had been deducted for tax he receives \$45,300. The tax paid was

- (A) \$45.30                      (B) \$45,300                      (C) \$430                      (D) \$4530

189. If  $f(x) = 3x$ , then  $f(x + 2) =$

- (A)  $3x - 2$       (B)  $4x + 2$       (C)  $4x - 2$       (D)  $3x + 2$

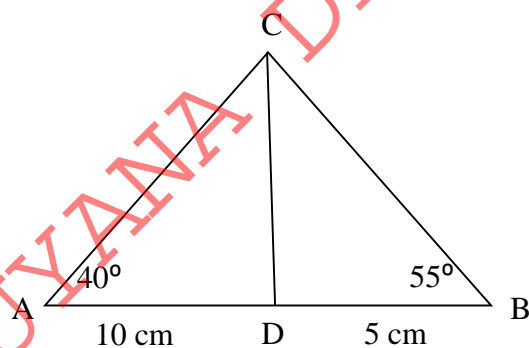
190.  $y$  is directly proportional to  $x$ . When  $x = 13$ , then  $y = 16$ . When  $x = 52$ , then  $y =$

- (A) 29      (B) 64      (C) 47      (D) 55

191. The volume of a cube is  $1000 \text{ cm}^3$ . How many litres of water will the cube hold?

- (A) 1.5      (B) 3      (C) 2      (D) 1

192. In the figure below, angle  $CAD = 40^\circ$ , angle  $CBD = 55^\circ$ ,  $AD = 10 \text{ cm}$  and  $BD = 5 \text{ cm}$ . The height of triangle  $ABC$ ,  $CD$  is



- (A)  $5\text{cm} \times \tan 55^\circ$       (B)  $5\text{cm} / \tan 55^\circ$   
 (C)  $5\text{cm} \times \sin 55^\circ$       (D)  $5\text{cm} / \sin 55^\circ$

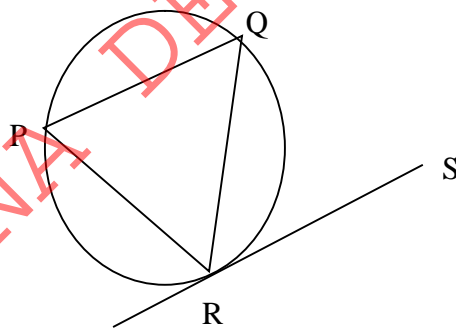
MATHEMATICS

193. In a **cyclic quadrilateral** the opposite angles are –

- (A) equal (B) complementary (C) supplementary (D) obtuse

194. The volume of a cubical tank is  $512 \text{ m}^3$ . The area of one of its plane faces is

- (A)  $64\text{m}^2$  (B)  $16\text{m}^2$  (C)  $24\text{m}^2$  (D)  $8\text{m}^2$



195. In the above diagram, RS is a tangent to the circle and R is the point of tangency. If angle  $QRS = 55^\circ$ , then angle  $PQR =$

- (A)  $125^\circ$  (B)  $35^\circ$  (C)  $55^\circ$  (D)  $50^\circ$

MATHEMATICS

196. In a paper bag there are 6 red marbles and 4 green marbles. If **one** marble is selected at random what is the **probability** that it is a **green marble**?

- (A)  $\frac{2}{5}$                       (B)  $\frac{2}{3}$                       (C)  $\frac{5}{2}$                       (D)  $\frac{3}{2}$

197. A vehicle is purchased for \$1,200,000 in 2010. It is depreciated at a rate of 5% per annum. What is its value at the end of 2012?

- (A) \$108,300                      (B) \$1,083,000                      (C) \$1,083                      (D) \$10,830

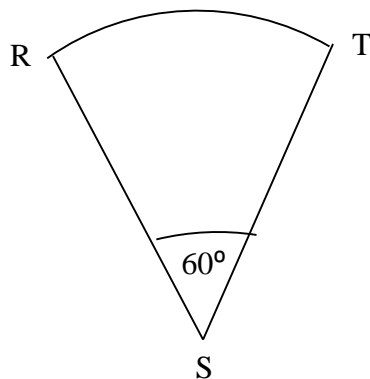
198. The factors of  $x^2 + 14x + 45 = 0$  are

- (A)  $(x - 4)(x - 5)$                       (B)  $(x - 4)(x + 5)$   
 (C)  $(x - 5)(x + 4)$                       (D)  $(x + 4)(x + 5)$

199. Given that  $2x^2 + 3x - 5 = 0$ . What is the value of x?

- (A)  $x = (1; 2.5)$                       (B)  $x = (-1; 2.5)$                       (C)  $x = (1; -2.5)$                       (D)  $x = (-1; -2.5)$

200. In the figure below, the minor sector RST is part of a circle with centre O and circumference 84cm. The length of the minor arc RT, in cm is



MATHEMATICS

- (A) 28                      (B) 14                      (C) 35                      (D) 56

201. A plane was travelling on a bearing of  $225^\circ$ . In what direction was it travelling?

- (A) South- west                      (B) South- east  
(C) North-east                      (D) North- west

202. An insurance saleswoman receives a commission of 15% on sales exceeding a value of \$35,000. If she received \$9,000 commission, how much did she actually sell?

- (A) \$60,000                      (B) \$5,250                      (C) \$95,000                      (D) \$44,000

203. Given that  $\begin{pmatrix} -2 & x \\ Y & 3 \end{pmatrix} = \begin{pmatrix} 6 & 7 \\ -4 & 8 \end{pmatrix}$ , the value of x and y is

- (A) (6,8)                      (B) (7, -4)                      (C) (7,8)                      (D) (-4, 6)

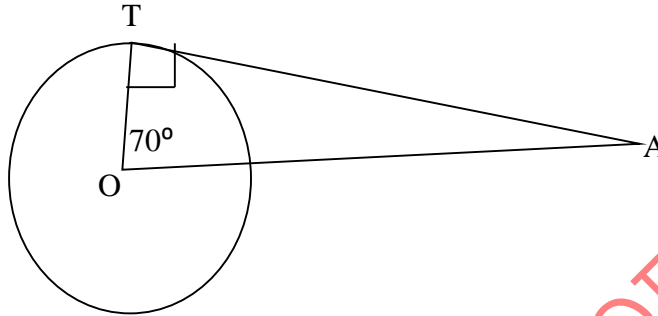
204. The function  $f$  is defined by  $f(x) = 2x^2 + 3x - 4$ . The value of  $f(3)$  is

- (A) 31                      (B) 11                      (C) 15                      (D) 23

205. A cylindrical tank has a volume of  $30,000 \text{ cm}^3$ . How many **litres** of fuel will it hold when it is  $\frac{5}{6}$  full?

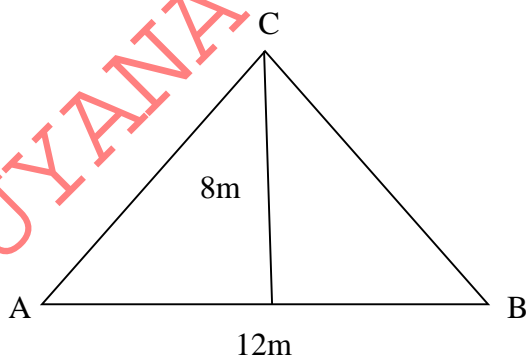
- (A) 2500                      (B) 25,000                      (C) 250                      (D) 25

206. In the figure below, AT is a tangent to the circle and OA is a straight line. Angle AOT =  $70^\circ$ . What is the value of angle OAT?



- (A)  $60^\circ$       (B)  $80^\circ$       (C)  $40^\circ$       (D)  $20^\circ$

207. The figure below, ABC is a cross-section of a vee – roof of width 12m and length 20m. The roof is to be covered with zinc sheet measuring 2m by 10m. The amount of zinc sheets required to cover the roof is-



- (A) 200      (B) 20      (C) 400      (D) 40

MATHEMATICS

208. At a factory the basic work week is 40 hours. For a particular week an employee gross earning was \$45,000, but \$10,000 was for over-time worked. The basic rate of pay is

- (A) \$1125      (B) \$87.50      (C) \$875      (D) \$112.50

209.

The table shows the scores that students got in a test.

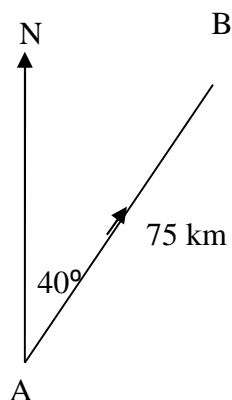
Score	Frequency
Below 75	4
76 - 80	14
81 - 85	2
86 - 90	8
91 - 95	5
96 - 100	1

How many students scored **more than** 86 marks?

- (A) 14      (B) 5      (C) 8      (D) 12

210. The formula  $AB = (x_2 - x_1)^2 + (y_2 - y_1)^2$  is used to determine the – of a line.

- (A) the mid-point      (B) equation      (C) length      (D) gradient



211. The diagram above, Port B is 75 km from Port A on a bearing of 040°. How far east of Port A is Port B?
- (A) 5.75 km      (B) 57.5 km      (C) 575 km      (D) 57.5 m
212. The probability of soldiers failing their promotional examination is  $\frac{1}{6}$ . If 1200 soldiers wrote the examination, how many is expected to fail?
- (A) 200      (B) 600      (C) 150      (D) 250
213. A computer presently valued at \$240,000 depreciates at a rate of 10% per annum. What will be its value after 4 years?
- (A) \$15,746      (B) \$157,464      (C) \$1,574      (D) \$15,750
214. How many squares of side 1cm is needed to cover a **cube** of edge 5cm?



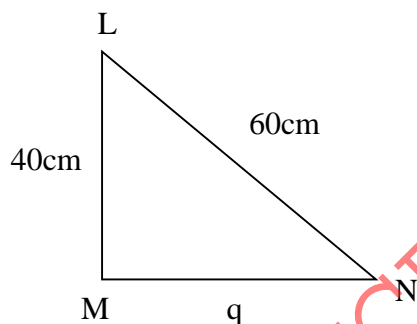
(A) 25

(B) 75

(C) 300

(D) 150

215.



In the triangle LMN, angle M =  $90^\circ$ , LM = 60 cm and LN = 40 cm. Tan angle LNM =

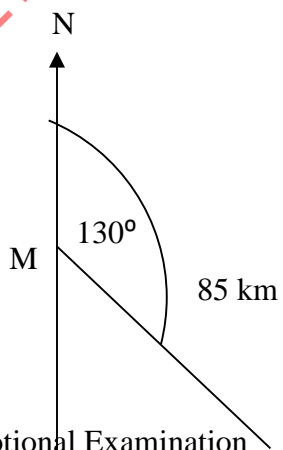
(A)  $3/2$

(B)  $2/3$

(C)  $q/40$

(D)  $40/q$

216.



C

A plane travels from airport M to airport C 85 km away on a bearing of  $130^\circ$ . How far south of airport M is airport C?

- (A)  $85 \text{ km} \times \cos 50^\circ$                       (B)  $85 \text{ km} \times \sin 50^\circ$   
 (C)  $85 \text{ km} \times \tan 50^\circ$                       (D)  $85 \text{ km} \times \sin 130^\circ$

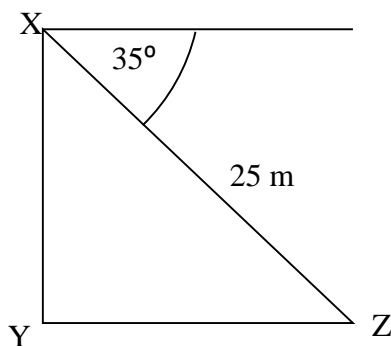
217. A beverage factory produces 35000 bottles of drink each day. The probability that a bottle of drink is defective is  $\frac{1}{500}$ . How many bottles of drink are likely to be defective on any particular day?

- (A) 70              (B) 55              (C) 25              (D) 100

218. A boat was travelling on a bearing of  $315^\circ$ . In what direction was it travelling?

- (A) South - west                      (B) North - east  
 (C) North - west                      (D) South - east

219.

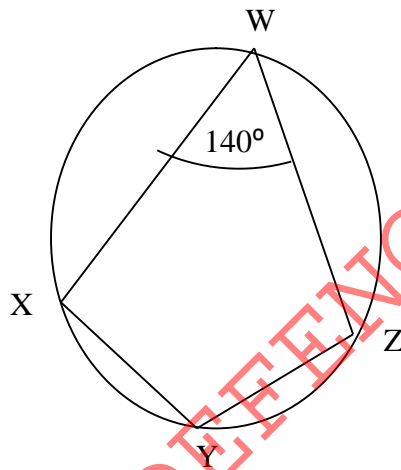


MATHEMATICS

The diagram above shows the angle of depression of a point Z from X. The distance XZ measured along the line of sight is 25m. XY is a vertical tower standing on level ground YZ. The height of the tower, in metres, is

- (A) 14.34      (B) 1.43      (C) 143.4      (D) 1434

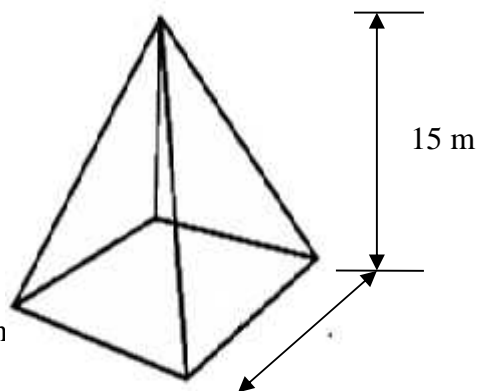
220.



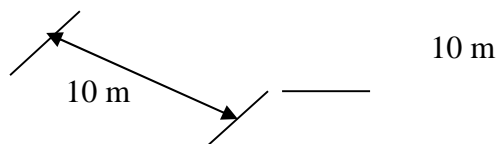
In the diagram above angle  $XWZ = 140^\circ$ . Angle  $XYZ =$

- (A) 280      (B) 140      (C) 70      (D) 40

221.



MATHEMATICS



The surface area of the pyramid shown in the above figure is.

- (A) 400m      (B) 400m<sup>2</sup>      (C) 35m      (D) 35m<sup>2</sup>

222. A worker is paid at a rate of \$500 per hour for a 40 hour week, and 1.5 the hourly rate for work done in excess of 40 hours. What is her gross wages if she works 75 hours for a particular week?

- (A) \$3,000      (B) \$37,500      (C) \$28,750      (D) \$46,250

223. The volume of a sphere of diameter 18 cm (to the closest whole number) is-

- (A) 334<sup>2</sup>      (B) 339 cm<sup>2</sup>      (C) 340 cm<sup>3</sup>      (D) 339 cm<sup>3</sup>

224. An office assistance salary is \$60,000 per month. His free pay is \$50,000. The remainder of his salary is taxed at a rate of 33%. What amount did he pay in tax?

- (A) \$33.00      (B) \$3.30      (C) \$3,300      (D) \$330

225. A sales clerk gross salary is \$125,000, inclusive of \$50,000 non-taxable allowance. She pays income tax at a rate 30% on the remainder of her income. Her net income is-

- (A) \$10,250      (B) \$102,500      (C) \$1,025      (D) \$103,000

MATHEMATICS

226. An insurance agent receives a commission of 15% on policies sold above \$3,000,000. If his sales for a particular month was \$5,000,000. How much will he received as commission?

- (A) \$37500      (B) \$3750      (C) \$300,000      (D) \$30000

227. Express  $\frac{132}{150}$  as a percentage

a.66%

b.75%

c.55%

d.88%

228. How much interest does a man pay if he borrows \$4000 for one year at an interest rate of 12%

a.\$50

b.\$64

c.\$48

d.\$36

229. Determine the mean of the numbers 438, 440, 442 and 444.

a.436

b.441

c.525

d.454

230. A minibus runs 800 metres in 50 seconds. Calculate the average speed in kilometers per hour.

a. 0.78 kph

b. 0.65 kph

c. 0.096 kph

d. 0.88 kph

231. The value of a car decreases by a fixed percentage of its original. The cost of the car when purchased was \$25,600. Its value after one year was \$20,800. What percentage has the value decreased by?

a. 18.75%

b. 17.95%

c. 16.43%

d. 19.24%

232. The price for an article has been reduced by 8%. The new price of the same article is \$7000. Calculate the original price.

a. \$8246

MATHEMATICS

b.\$6950

c. \$7609

d.\$9544

232. The mean of 5 numbers are 15 and the mean of a further eight numbers are 2. Calculate the mean of all thirteen numbers.

a.7.76

b.8.35

c.5.45

d.6.63

233. A man left  $\frac{3}{8}$  of his money to his wife and half of the remainder to his son. The rest was divided equally amongst his five daughters. Find what fraction of the money each daughter received.

a. $\frac{3}{8}$

b. $\frac{1}{4}$

c. $\frac{5}{16}$

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

234. By selling an article for \$18 a shopkeeper makes a profit of 44% on the cost price. At what price must it be sold in order to make a profit of 40%

a. 18

b.16

c.21

d.23

235. In 1983 the cost of building a garage was divided between material cost, labour cost and overhead cost in the ratio of 10:13:2. The garage cost \$64,000. Calculate the cost for materials.

a.\$27000

b.\$30000

c.\$23000

d.\$34000

236. If  $2^x = 32$  then x equal

a.1/5

b.5

c. 32

d.32/2

237. In 1983 the cost of building a garage was divided between material cost, labour cost and overhead cost in the ratio 10:13:2. The garage cost \$64000. Calculate the cost of overheads.

a.\$2300

b.\$3000

c.\$4741



d.\$2100

238.  $(3x)^3$  is equal to

a.  $3x^5$

b.  $9x^5$

c.  $3x^6$

d.  $27x^3$

239. Find the value of  $(\frac{0.75}{0.15})^2$

a. 10

b. 15

c. 20

d. 25

240. In 1983 the cost of building a garage was divided between material cost, labour cost and overhead cost in the ratio of 10:13:2. The garage cost \$64000. Calculate the cost of labour.

a. \$30000

b. \$30815

c. \$23000

d. \$27000

241. A wheel has a diameter of 70 cm. How many revolutions will it make in travelling 55 km?

a. 25007 rev

b. 30000 rev

c. 35523 rev

d. 23456 rev

242. A cylindrical container has a diameter of 280 mm and a height of 50mm. How much liquid (in litres) will it hold?

a. 3.08L

b. 6.16L

c. 30.8L

d. 61.6L

243. Find the simple interest on \$700 invested for 3 years at 6% per annum.

a. \$145

b. \$126

c. \$175

d. \$138

244. A hollow shaft has a cross sectional area of  $8.68 \text{ cm}^2$ . If its inner diameter is  $0.75 \text{ cm}$ . Calculate the outer diameter.

a.  $2.0$

b.  $3.1$

c.  $2.4$

d.  $1.8$

245. A man,  $1.5 \text{ m}$  tall is  $15 \text{ m}$  away from a tower  $20 \text{ m}$  high. What is the angle of elevation of the top of the tower from his eyes?

a.  $51.0^\circ$

b.  $60.4^\circ$

c.  $46.3^\circ$

d.  $32.2^\circ$

246. How many litres of water will a container of  $40 \text{ cm}^3$  hold?

a.  $0.004$

b.  $0.04$

c.  $40$

d.  $0.0044$

247. Two bicycle gear wheels mesh together. One gear has 35 teeth and the other has 30 teeth. If the smaller wheel make 70 revolutions per minute. How many revolutions per minute does the larger wheel make?

- a. 30 rev/min
- b. 40 rev/min
- c. 50 rev/min
- d. 60 rev/min

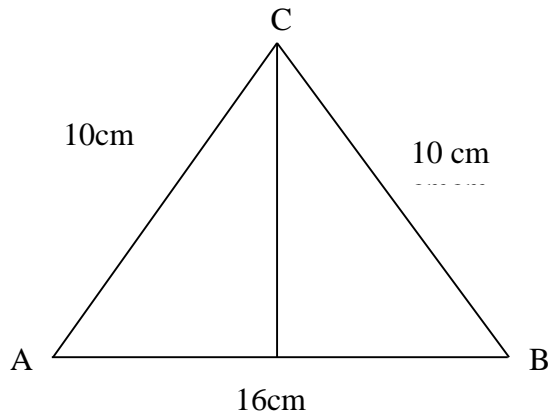
248. If 12 men can sew 180 shirts in 5 days. How long will it take 15 men to sew the same number of shirts?

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

❖ 249. A car travels an average of 12.3 km on each litre of petrol. How far will it likely to travel on 105 litres?

- a. 7.66 km
- b. 8.54 km
- c. 9.32 km
- d. 5.49 km

250.

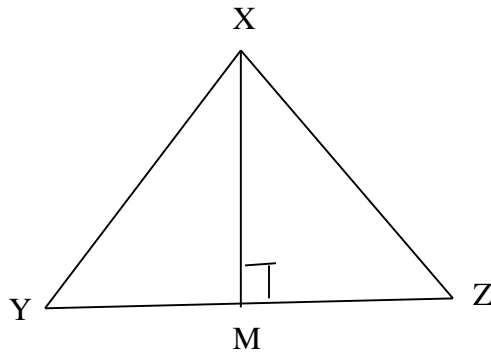


The perimeter of the triangle ABC above is

- a. 42 cm
- b. 32 cm
- c. 80 cm
- d. 36 cm

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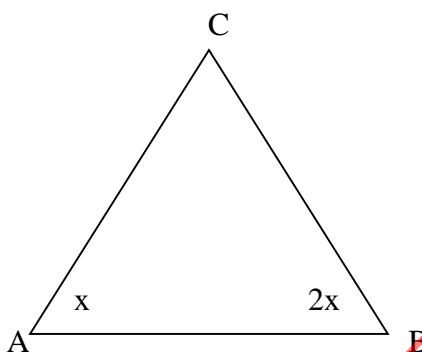
251.



In the equilateral triangle above,  $XY = 9$  cm, M is the mid-point of YZ. Angle YXM is

- a.  $60^\circ$
- b.  $45^\circ$
- c.  $30^\circ$
- d.  $15^\circ$

252.



In the triangle ABC above, angle A =  $x^\circ$  angle B =  $2x^\circ$ . Angle C =

- a.  $60^\circ$
- b.  $(180/3x)^\circ$
- c.  $(180 - 3x)^\circ$
- d.  $45^\circ$

253. In the simultaneous equations

$$2x + 3y = 17$$

$$3x + 4y = 24$$

x is equal to 4. Hence the value of y is

- a. 3
- b. 4
- c.  $25/3$

d.75

254.  $51 - (2.37 + 1.41)/0.5 \times 1.4$

a.13.9

b.17.3

c.19.4

d.21.6

255. In the simultaneous equations:

$$2x - 3y = -16$$

$$5y - 3x = 25$$

x is equal to  $-5$ . Hence the value y is

a. -2

b.0

c.2

d.26/3

256. Simplify the following algebraic expressions

$$x/3 + x/5 + x/10$$

a.  $19/30 x$

b.  $12/15 x$

c.  $17/12 x$



d.  $\frac{19}{23} \times$


257. 42% of attendees out of a total attendance of 38500 at a football match were females. How many females attended?

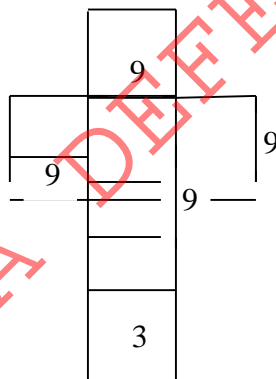
a. 14567

b. 22330

c. 16170

d. 12434

 258.



The figure above consists of six equal squares and has an area of  $54\text{m}^2$ . Its perimeter (in metres) is

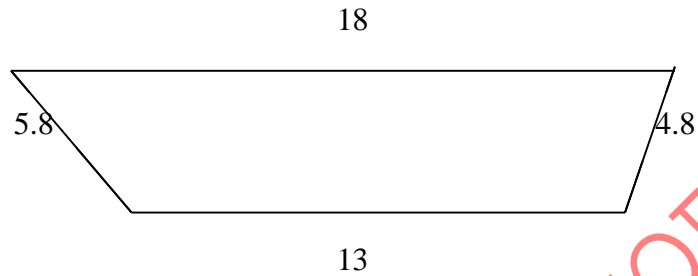
a. 42

b. 27

c.126

d.324

259. Find the perimeter of the figure below



All Dimension in metres

a. 206

b.27

c.728

d.324

260. Which power is equivalent to  $5^{12} \div 5^4$ ?

a.  $1^3$

b.  $1^8$

c.  $5^3$

d.  $5^8$

261.  $(n + 3)(9 - 5) = 16$ . then n equal

a.1

b.7

c.4

d.9

262.  $3 \times 3 \times 3 \times 3 \times 11 \times 11 \times 11$  expressed in **exponential** form is

a.  $4^3 \times 3^{11}$

b.  $3^4 \times 11^3$

c.  $33^7$

d.  $33^3$

263.  $8.1 \times 10^{-5} =$

a. 8,100,000

b. 810,000

c. 0.000081

d. 0.0000081

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227. A tank has a **capacity** of  $7000 \text{ cm}^3$ . Water is poured into it until it reaches a level of  $4000 \text{ cm}^3$ . How many **liters**

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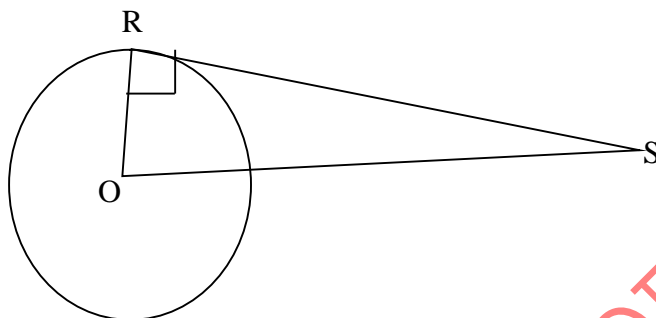
of water is in the tank?

- (A) 400      (B) 7      (C) 40      (D) 4

228. A sales clerk is paid a commission of 8% on sales above \$20,000. Her sale for a particular week was \$55,000. Determine her weekly wages if she is paid a gross wage (inclusive of commission) of \$30,000.

- (A) \$35,500      (B) \$24,500      (C) \$60,500      (D) \$50,000

229. In the figure below, RS is a tangent to the circle and RO is a radius drawn from the centre of the circle to meet the tangent RS at R. What is the value of angle ORS?



- (A)  $60^\circ$       (B)  $80^\circ$       (C)  $90^\circ$       (D)  $45^\circ$
230. A man is lying on top of a hill and observed a ship out at sea 100 metres from the foot of the hill. The height of the hill is 120 metres. The angle of depression is (to the closest degree)  
 (A)  $40^\circ$       (B)  $60^\circ$       (C)  $90^\circ$       (D)  $50^\circ$
231. Given the end points A(4, -6) and B(-10, 9), the length of the line is.  
 (A) 2.15      (B) 214.7      (C) 2147      (D) 21.47
232. The mid-point of a straight line with end points P(4, -6) and Q(-8, 7) is.  
 (A) (-1, -0.5)      (B) (1, 0.5)      (C) (-0.5, -1)      (D) (0.5, 1)
233. The gradient of a line with end points R(4, 8) and S(6, 10)  
 (A) 1.8      (B) -1.8      (C) 1      (D) 2
234. The formula  $y = mx + c$  is used to find the ---- of a straight line.  
 (A) mid-point      (B) equation      (C) slope      (D) length
235.  $f(x) = 2x - 6$ , then  $f(x)^{-1} =$

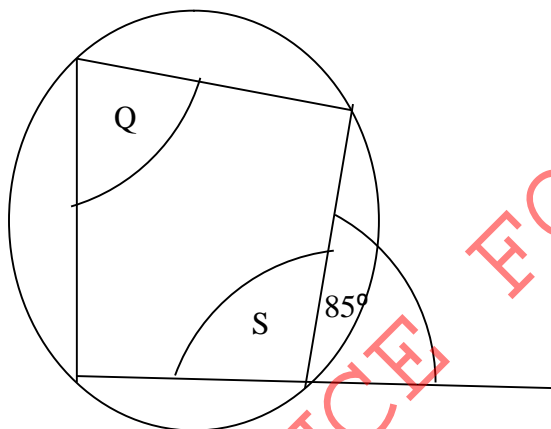


MATHEMATICS

- (A)  $\frac{1}{2}x - 6$  (B)  $\frac{1}{2}x + 6$  (C)  $-\frac{1}{2}x - 6$  (D)  $-\frac{1}{2}x + 6$

236. The formula  $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$  is used to solve ----- equations

- (A) simple (B) simultaneous (C) quadratic (D) complex



237. In the above figure the value of the angles marked Q and S is

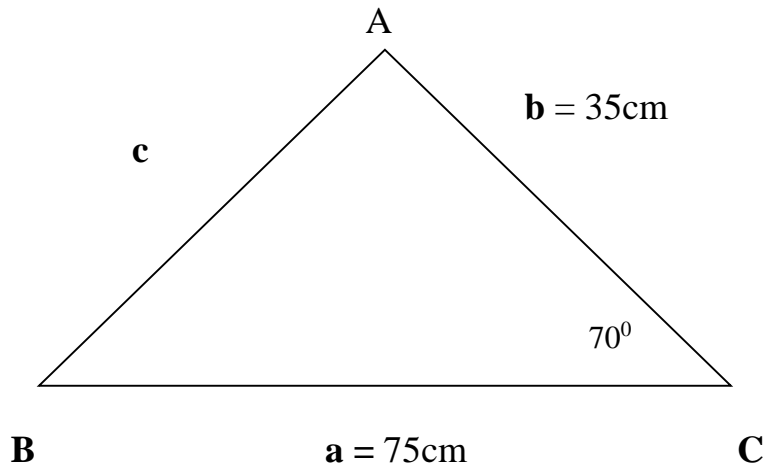
- (A)  $85^\circ$  and  $95^\circ$  (B)  $85^\circ$  and  $85^\circ$  (C)  $95^\circ$  and  $95^\circ$  (D)  $100^\circ$  and  $85^\circ$

238. The term **depreciation** means ----- in value.

- (A) an equivalent (B) an increase (C) a stable (D) a decrease

239. When a radius meets a tangent the angle formed is ---- angle.

- (A) an obtuse (B) a right angle (C) an acute (D) a straight



240. In the diagram above,  $a = 75\text{cm}$ ,  $b = 35\text{cm}$  and  $C = 70^\circ$ . The value of  $c$  is

- (A) 71.1 cm (B) 7.11 cm (C)  $71.1\text{ cm}^2$  (D)  $7.11\text{ cm}^2$