

Nivithigala Education Division

Third Term Test - 2019

Grade - 09

Subject – Mathematics I

Time – 2.30 hours

- Answer all questions in this paper itself

(01) Write 6.5×10^{-4} in general form.

(02) Simplify $5 \div (1\frac{1}{2} + 2\frac{1}{3})$

(03) Find the value
$$\begin{array}{r} 1001_{\text{two}} \\ - 111_{\text{two}} \\ \hline \hline \end{array}$$

(04) When buying a book, 20% of profit percentage is given. The profit gain from a book is RS. 80.00.

- Find the marked price
- Find the selling price of that book.

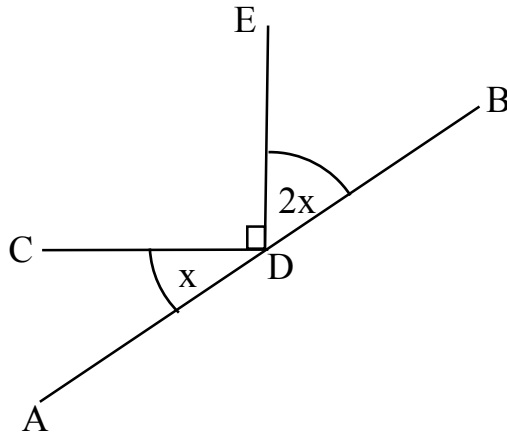
1

(05) Subject the “y” of the formula, $x^2 - y^2 = 2as$

(06) The highest value and the lowest value of a frequency distribution are 95 and 5 , find the range of this set of data.

(07) Find the 10th term of the number pattern for which the general term $T_n = 10 - 2n$

(08) Find the value of "x" according to the given information. (Here AB is a straight line)

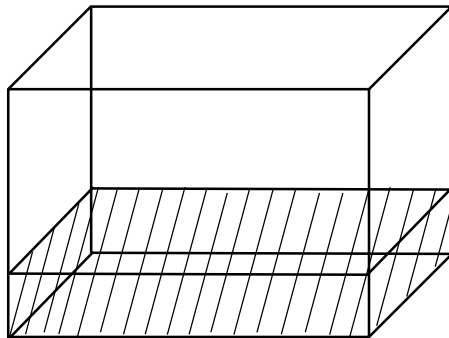


(09) Simplify $\frac{7}{x+1} + \frac{4}{x+1}$

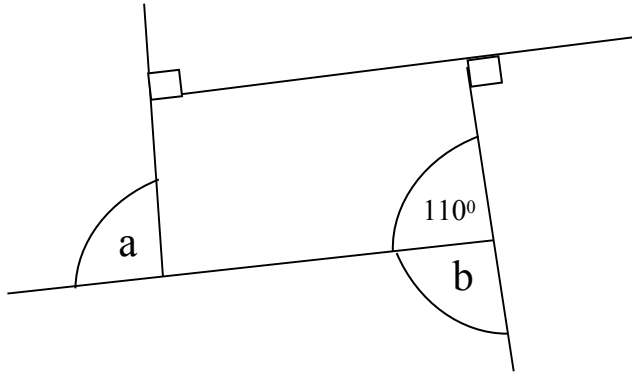
2

(10) Find the factors of the expression $p^2q^2r - qr$

(11) Base area of a cuboid shaped tank is $70\text{cm} \times 50\text{cm}$. If water is filled up to 10cm, Find the volume of water in this tank.



(12) Find the value of “a” and “b” according to the information given in the figure.



(13) Simplify and write the answer with positive index.

$$\frac{2x^{-3} \times x^2}{4}$$

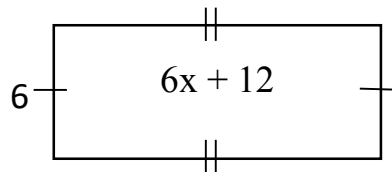
(14) Fill in the blanks

- (i) \odot {ක, න, ර, ග, ම} (ii) {2, 4} {2, 4, 6, 8, 10}

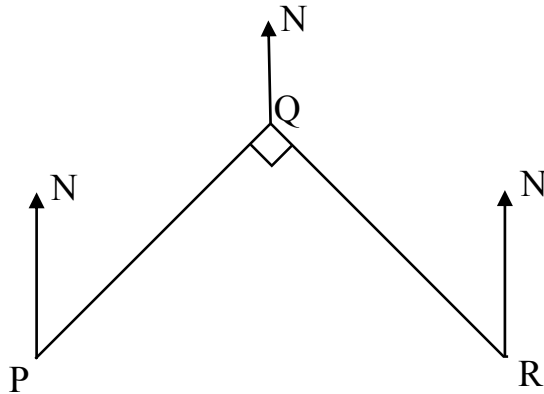
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(15) Find the perimeter of the semi-circular f lower garden with 3.5m radius.

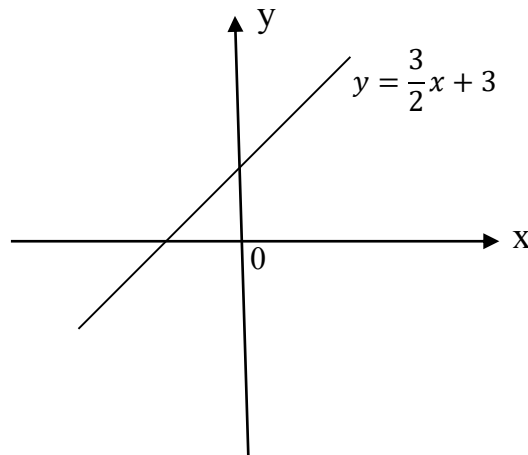
(16) Area of the following rectangle is $6x + 12$. According to the information given below find it's length



(17) Find the bearing of Q from P if bearing of Q from R is 030° .

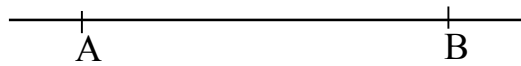


(18) Write the equation of the straight line which is parallel to the given straight line and passes through the point $(0, -2)$



4

(19) A well should be constructed which is equidistance from the houses A and B, and 4m distance from the straight road AB. Mark the location of well using your knowledge on Loci?



(20) Find the probability of drawing a red ball when a ball is drawing from a bag which is consisting two red balls and three blue balls.

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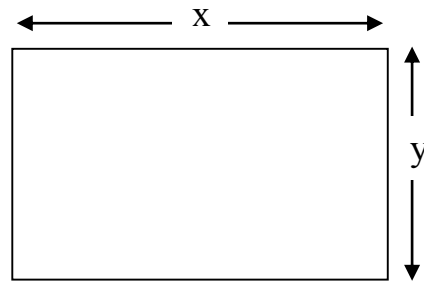
Subject – Mathematics II

Time - 2 hours

• **Answer only 6 questions.**

- (01) (a) (i) Write $x^2 - 8x + 15$ as product of two factors. (2 marks)
 (ii) Find the factors of $4x^2 - 9y^2$ (2 marks)
 (iii) Find the value of $\sqrt{67 \times 73 + 9}$ with the knowledge on factors. (2 marks)

- (b) Length and breadth of a rectangle are x and y respectively. If another rectangle with its length two units greater than the above rectangle and three units less than the above rectangle.



- (i) Write length and breadth of new rectangle. (2 marks)
 (ii) Write the area of it with x and y , and expand it. (2 marks)

- (02) (a) (i) Represent the solution of an inequality $-2 \leq x < 2$, on a number line. (1 mark)
 (ii) Write integral solution set of that inequality. (1 mark)

- (b) An incomplete tables of values prepared to draw the graph of the functions.

$y = x + 1$ and $y = -x + 1$ are given below.

X	X+1	Y
-4	-4+1	-3
-2
0	0+1
2	3
4	4+1	5

X	-X+1	Y
-4	-(-4)+1	5
-2
0	0+1	1
2
4	-(4)+1	-3

(2 marks)

- (i) Draw the graphs of the functions in a same co-ordinate plane. (4 marks)
 (ii) Write the co-ordinate of the interested point. (1 mark)
 (iii) Find the product of two gradients. (1 mark)

(03) The heights (in centimetres) of the grade 5 students of a certain primary school are given below.

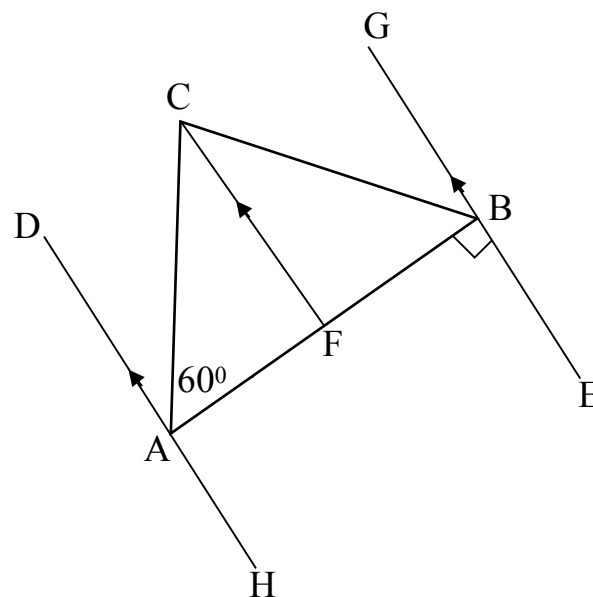
129 129 143 130 127 134 127 133 136 132 130 125 130
 125 126 130 125 137 132 129 131 135 130 136 127 135
 134 133 130 127 138 149 130 128 131 130 141 131 137

- (i) What is the maximum height of a children? (1 mark)
- (ii) What is the minimum height of a children? (1 mark)
- (iii) Find the range of this data set. (1 mark)
- (iv) Construct a grouped frequency distribution of class size 5 (5 marks)
- (v) Using the table,
 - (a) Find the modal class (1 mark)
 - (b) Find the median class (1 mark)

(04) (a) Magnitude of an interior angle of a regular polygon is 108° . Find,

- (i) The magnitude an exterior angle. (2 marks)
- (ii) The number of sides the polygon has. (2 marks)
- (iii) The sum of interior angles. (2 marks)

(b)



If $AD \parallel CF \parallel CE$ and the angle $EBF = 90^\circ$ and $CAF = 60^\circ$ of the above diagram.

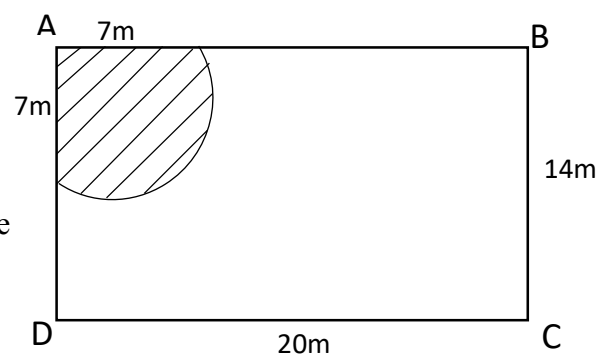
- (i) Find the value of CAD. (2 marks)
- (ii) Write down an equal angle for CAD. (1 mark)
- (iii) If $CBG = 40^\circ$, Find the magnitude of ABC. (2 marks)

- (05) Using only a ruler with mm/cm scale and a compass.
- (i) Construct a triangle ABC so that $\angle C = 120^\circ$, $AC = 6.6\text{cm}$ and $BC = 6.5\text{cm}$. (3 marks)
 - (ii) Produce the side CB to point X so that $BX = 5\text{cm}$. (2 marks)
 - (iii) Construct perpendicular bisectors of the side BX and AC. (2 marks)
 - (iv) Construct a circle by taking the intersected point of two perpendicular bisectors as centre "O" and by taking OX as the radius. (2 marks)
 - (v) Name another radius of that circle. (1 mark)

- (06) (a) $\Sigma = \{1,2,3,4,5,6,7,8,9\}$
 $A = \{2,3,4,5,6,8\}$
 $B = \{2,4,6,8\}$
- (i) Mention the above information in a venn diagram. (2 marks)
 - (ii) Write a relationship among A and B. (2 marks)
 - (iii) Write the set A' with elements. (2 marks)
 - (iv) Write $A \cap B$ with its elements. (2 marks)

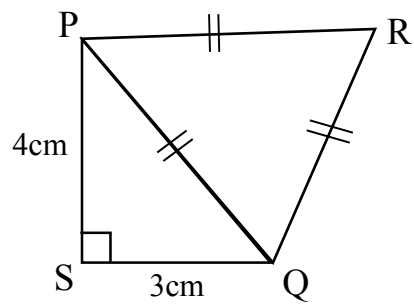
- (b) A bag contains 3 Narran-flavoured toffees and 2 orange-flavoured toffees and 1 guava-flavoured toffee. Ajith took a toffee randomly from the bag.
- (i) Write the sample space S by taking Narran-flavoured toffee as (N) orange flavoured as (O) and guava flavoured as (G) (2 marks)
 - (ii) Find the probability of having an orange flavoured toffee. (2 marks)

- (07) ABCD is a rectangular plot of land owned by Saman.
- (a) The leafy vegetable "Gotukola" has been grown in the shaded area which is a sector of radius 7m. (Take $\pi = \frac{22}{7}$)

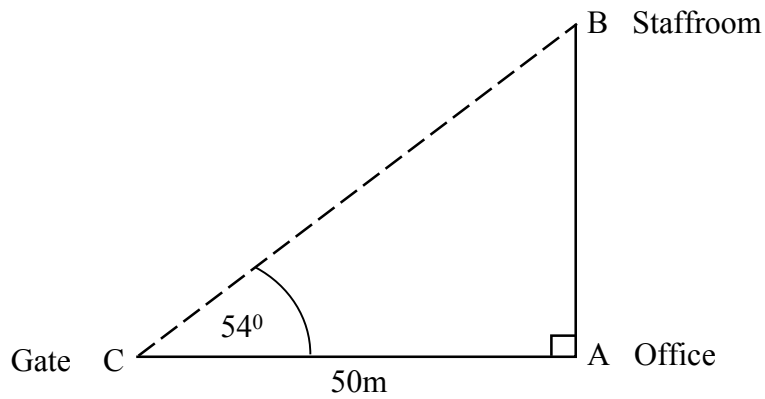


- (i) Find the length of the curved boundary of the section where gotukola has been grown. (3 marks)
- (ii) What is the area of the land where gotukola is not grown? (2 marks)

- (b) Find the perimeter of the triangle PQR. (3 marks)



(08) The sketch shows locations of three places in a school. Draw a diagram to the scale 1:1000.



- (i) From it find the real distance between office and staff room. (2 marks)
- (ii) Find the bearing of B from C. (2marks)
- (iii) Find the bearing of C from B. (2 marks)