Minuwangoda Zonal Education

Second Term Evaluation - 2024

Grade 9

Mathematics

Name: ..... Time: 2 hours

Part I

Answer all questions.

1) Simplify $1001_{two} + 111_{two}$

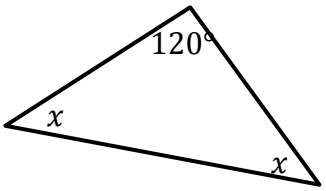
2) How many grammes are there in $\frac{2}{5}$ of $1kg$.

3) Dunuhitha, a foreign employee earns 1000 US dollars monthly. Express that amount in Sri Lankan rupees (1$= Rs.361.72)

4) Solve $\frac{x}{5} + 1 = 4$

5) Round off 0.297 to the nearest second decimal place.

6) Find the value of x according to the given information.



7) Find the capacity of a cubic vessel with side length 10cm, in litres.

8) Put a √ in the box if the two quantities given at each occasion are proportional direct to each other.

i. The number of 40 pages books and their cost. ( )
ii. The distance and the time taken by a vehicle which travels at a uniform speed ( )
iii. The time taken and the speed of the vehicle when completing a journey ( )

9) Expand and simplify the product of the binomial expressions (a+1)(a+3).

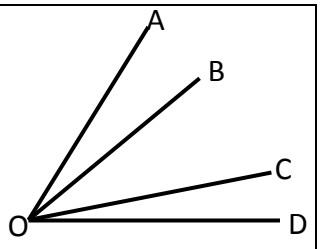
10) Calculate the loss incurred when selling an item at 800 rupees which was bought at Rs.1000

11)If $A\hat{O}B = C\hat{O}D$ fill in the blanks in order to show that $A\hat{O}C = B\hat{O}D$

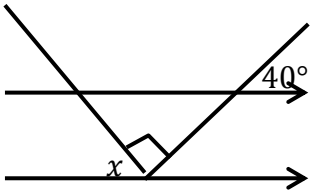
$A\hat{O}B = C\hat{O}D$ (Data)

$A\hat{O}B$ + ... = $C\hat{O}D$ + ... (axiom)

$\therefore$ $A\hat{O}C$ = $B\hat{O}D$



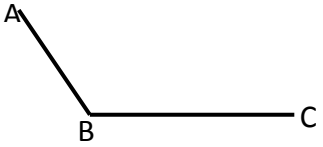
12)Find the value of x



13)Factor $3P^2 - 75$

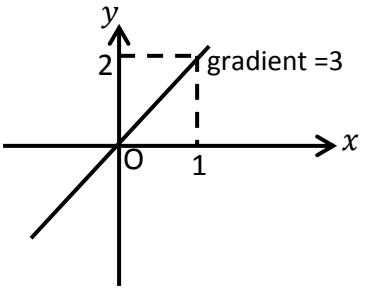
14)When $x = \frac{1}{2}\ y - 1$ Find the value of $4x + 6y$

15)Construct the locus of the point which is equidistant to the sides AB and BC of the given figure.



16)Express 273000 in scientific notation

17)According to the given sketch write down the equation of the function.



18)Simplify the expression $\frac{x^2 \times 3x^{-4}}{x}$ and express your answer with positive indices.

19)Subject n of the formula $P = a + dn$

20)Simplify $3\frac{3}{4} \div \frac{5}{8}$

Part II

Answer the first question and any four other questions.

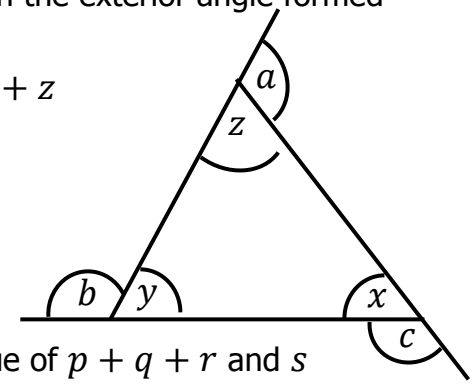
01) Recall your memory on the lesson 'Loci' and do the following constructions in the same diagram.

i. Construct the straight line AB which is 6cm in length.
ii. Construct the perpendicular bisector of AB.
iii. Name the point C where the perpendicular bisector meets the straight line AB
iv. Construct an angle of $60°$ at A and name the point D where it meets the perpendicular bisector
v. Construct the perpendicular bisector of AD and name the point O where it meets AD
vi. Construct the circle with centre O and the radius OA.
vii. The angle bisector of ADC meets the side AC at P.
viii. Write down the Pythagoras' relationship for a right angled triangle you observe within the construction.

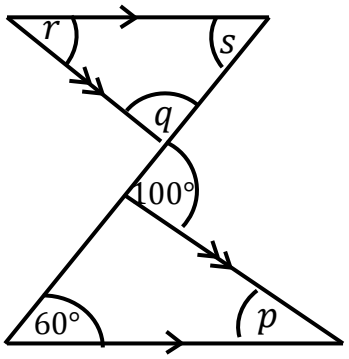
02)

(A) Write down the theorem that shows the relationship between the exterior angle formed When producing a side and the interior angles of a triangle.

(B) How many times is the value $a + b + c$ as the value $x + y + z$



(C) According to the information given in the figure find the value of $p + q + r$ and s



03) An incomplete table prepared for the function $y = x - 2$ is given below.

x	-2	-1	0	1	2	3
y	-4	-3	.....	.....	0	1

i. Fill in the blanks in the table
ii. Draw the graph in a suitable co-ordinate plane.
iii. Find the value of x using the graph when $y = -1\frac{1}{2}$
iv. Write down the equation of the straight line which is parallel to the above graph and goes through (0, 3)
v. Write down the gradient and the intercept of the straight line you names above (iv)

04)

(A) Consider the number pattern -5, -2, 1, 4, ……..

i. Find the common difference

ii. Write down an expression for the nth term (Tn)

iii. Find the 25^{th} term by means of Tn

iv. Which term is equal to 103?

(B) Find the first 4 terms of the number pattern with general term $Tn = 5n - 2$

05)

i. Factor $x^2 + 10x - 24$

ii. Find the values of m and n if $2m + n = 7$ and $m - n = 2$

iii. Find the value of F in the formula $C = \frac{5}{9}(F = 32)$ when C=45

iv. Solve $\{3(x + 5) - 2\} - 3 = 16$

06)

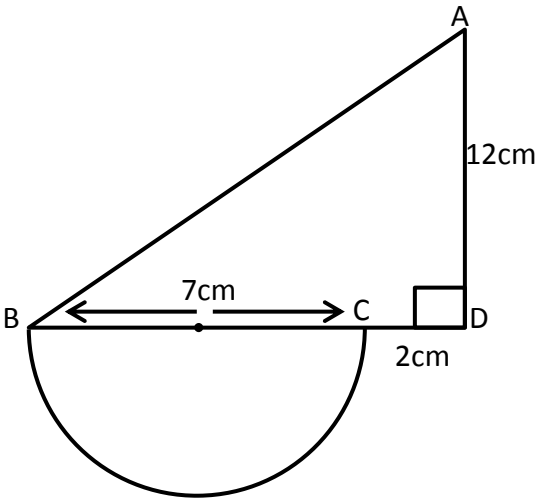
(A) The following figure shows a logo made by using a right angled triangle and a semi circle.

i. Find the value of the semi circle.

ii. Find the length of the side AB of the right angle triangle ABD

iii. Find the perimeter of the figure.

iv. If the price of one metre of ribbon is Rs.150 find the cost for pasting a ribbon around the logo.



(B) Find the area of the triangle ABD

07)(A)

i. Find the marked price of a mobile phone bought at Rs.8000 so as to make a 20% profit when selling it.

ii. If the phone is sold at a discount of 5% on the marked price, find the selling price and the discount offered.

(B) A father gives $\frac{2}{3}$ of his land to his son and $\frac{1}{4}$ to his daughter.

i. What is the portion received by the son and the daughter as a fraction of the whole land?

ii. If the remaining portion of land is 2 acres how many acres are there in the whole land?

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