First Term Examination 2015
Mathematics

Grade 09 **ගණිතය** **Time: 2.30 hours**

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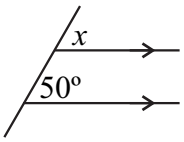
Part I

- **Answer all questions on paper itself.**

01	Write the next two terms of the number pattern. $3\frac{1}{2}$, 5 , $6\frac{1}{2}$, ... , ...
02	Write the number 12.56 in scientific notation.
03	Convert $7500cm^3$ in to cubic meters.
04	Find 8% of Rs. 500.
05	Find the reciprocal of $2\frac{1}{3}$
06	Round off 8.237 to two decimal places.
07	Find the value of x in the given figure. 
08	Remove brackets and simplify. (x + 5) (x - 2)
09	The general term of a number pattern is (2n + 5). Write down its first two terms.

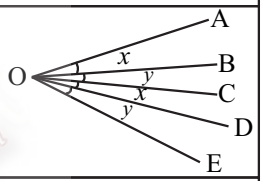
10 Simplify. $\frac{3}{7} - \frac{1}{3}$

11 A trader bought an article for Rs. 525 and sold it Rs. 567. Find its percentage profit.

12 Write 3.4×10^{-3} in general form.

13 Find the factors. $x(x + 3) - y(x + 3)$

14 Using the diagram given here, write two conclusions that can be arrived at.



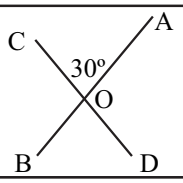
15 The length, breadth and height of a cuboid shape vessel is 8cm x 5cm x 3am. Find the volume of the vessel

16 If x = 2, y = -1 find the value of 3x + y.

17 Find factors $(x^2 - 9)$

18 $\frac{1}{4}$ of an amount of money is Rs. 500. Find the amount.

19 The straight lines AB and CD intersect each other at O. Find the magnitude of $B\hat{O}C$.



20 A person who gave Rs. 500 at 10% simple interest per year. What is the interest he receives after one year ?

(2 x 20 = 40)

Part - II

- **Answer first question and four other questions. 16 marks in first question and 11 marks in each other questions.**

01 Remind the lesson done at the classroom percentage. Using the knowledge of percentage and answer the questions.

(a) A trader sells a bag which cost of Rs. 500 at a profit of 10%. Accordingly above informations and complete the table.

	Cost Price	Profit	Selling Price
As a percentage	Rs. 100		
As an amount	Rs. 500		

(b) The present price of a gas cylinder is Rs. 2500. Find the new price

(i) when increased by 10%.

(ii) when decreased by 10%.

(c) A trader buys an article and marks its price expecting a profit of 40%. When selling a discount of 10% is allowed. If he sells it Rs. 25200

(i) what is the marked price of the article ?

(ii) what is the buying price of the article ?

(iii) what is the profit he gained in Rupees ?

(iv) find the percentage profit he obtained ?

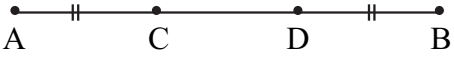
02 (a) Simplify.

(i) $\frac{3}{4} - \frac{1}{3}$ (ii) $1\frac{1}{3} \times \frac{1}{4}$ (iii) $\frac{2}{5} \div \frac{2}{3}$

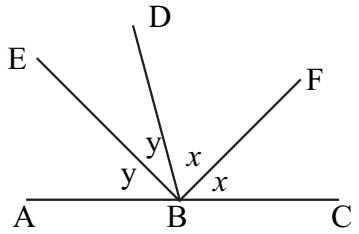
(b) Using the above answers and find the value of

(i) $\left(1\frac{1}{3} \times \frac{1}{4}\right) \times \left(1\frac{2}{5} \div \frac{2}{3}\right) \times \left(\frac{3}{4} - \frac{1}{3}\right)$ (ii) $\frac{\left(\frac{2}{5} \div \frac{2}{3}\right) - \left(1\frac{1}{3} \times \frac{1}{4}\right)}{\left(1\frac{1}{3} \times \frac{1}{4}\right)}$

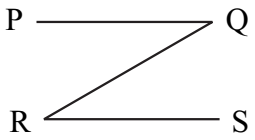
03 (a) ACDB is a straight line. If AD = BC, show that AC = BD.



(b) In the given figure ABC is a straight line. BE bisects $A\hat{B}D$ and BF bisects $D\hat{B}C$. According to the informations given in the diagram show that $E\hat{B}D + D\hat{B}F = 90^{o}$

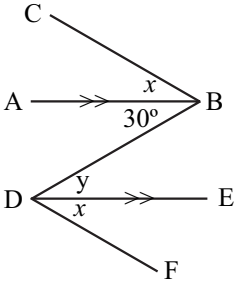


(c) (i) Show by giving reasons, that the lines PQ // RS



(ii) Find the value of y.

According to it show that DF and BC are parallel.



04 (a) 12000l of water is poured in to a container with a squar base of 2m x 2m.

(i) Find the volume of water in cubic metre.

(ii) Find the height will the water level rise.

(iii) If the pipe which delivers water from the tank sends out 100 litres of water per minute. Find the time needed to empty the water in the tank.

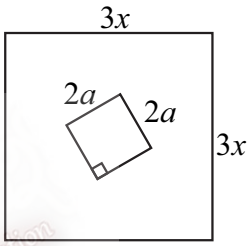
(iv) If one person requires a minimum of 150l of water for his needs per day. For how many persons will this water be sufficient for a day.

(b) According to police records the number killed in vehicle accidents in Sri Lanka during the period of 2005 to 2014 was about 19000. Denote this number in the scientific notation. Round off above number to the nearest thousand.

05 (a) Find the factors.

(i) $ax + bx + 5bx + 2ax$ (ii) $a^2 - 5a - 24$

(b) The figure shows a square, a side of which is $3x$ cm. If a small square a side of which is $2a$ cm is cut and taken out

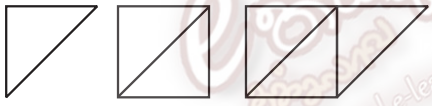


(i) write an expression to the area of remaining part.

(ii) Find the factors of above expression.

(iii) If $x = 5$, $a = 2$ find the area of the remaining part.

06 Shown below is a figure pattern formed by match sticks.



i ii iii

Figure	i	ii	iii	iv
No. of triangles	1	2	3	
Total number of match sticks	3	5	7	
No. of match sticks on the outer sides	3	4	5	

(i) Examine this pattern and from the next figure.

(ii) Accordingly find its number of triangles, total number of match sticks, number of match sticks on the outer sides.

(iii) If the number of triangles above pattern is n find the total number of sticks in terms of n. Find The number of sticks on the outer sides in terms of n.

(iv) What is the number of triangles when the total number of sticks is 121 ?

07

12% Annual rate of interest for you who deposit money in our bank.

(a) If Dileepa deposited Rs. 25000

(i) Find the interest for Rs. 100 for 1 year.

(ii) Find the interest for Rs. 25000 for 1 year.

(iii) He withdraws the deposit along with the interest after 3 years. What is the amount he received ?

(b) (i) Find the value of $4.6358 \div 0.05$.

(ii) Round off it to the nearest 10.

to the nearest two decimal places.