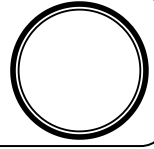




யா/ ஹாட்லிக் கல்லூரி, பருத்தித்துறை.  
J/ Hartley College, Point Pedro.



முதலாம் தவணைப் பரீட்சை – 2019 – தரம் 09  
First Term Examination – 2019– Grade 09

கணிதம் I, II  
Mathematics I, II

32

E

I, II

இரண்டு மணித்தியாலம்  
Two Hours

க.க.உ.எண்  
Index No

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**Mathematics**

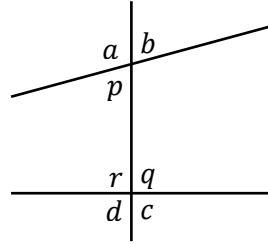
**Part – I**

Answer the all questions.

1. Add

$$18.67 + 1.867 + 186.7$$

2. Write a pair of alternate angle based on the information in given figure



3. Factorize.

$$x - ay - ax + y$$

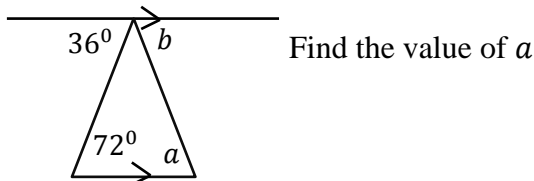
4. Fill in the cage

$$\frac{4}{\square} = \frac{12}{15}$$

5. Simplify

$$100111_{\text{two}} + 11_{\text{two}} - 11101_{\text{two}}$$

6.



7. A man receives the commission of 2% on the sale of a house. When selling the house worth Rs. 300 000.00, how much does he receive as the commission?

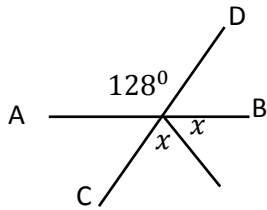
8. Simplify

$$\frac{5}{7} + \frac{1}{2}$$

9. Factorize

$$4x^2 - 1$$

10.



If AB, and CD are two straight lines.

Find the value of  $x$

11. Find the value of  $\sqrt{96 \times 104 + 4^2}$ , by use the factor knowledge.

12. Write  $110001_{\text{two}}$  as the decimal number.

13. Expand  $(x + \frac{1}{x})^2$

14. If a vendor buys a wall clock for Rs. 2300 and sells it a Rs. 2530, determine the profit percentage.

15. Write 161 as the binary number.

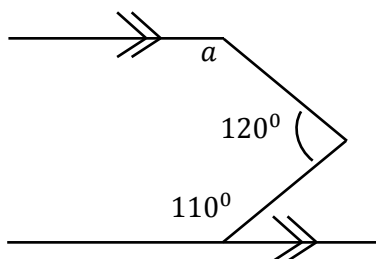
16. Factorize

$$(x + 1)^2 - 4$$

17. If  $(x + 4)(x - 3) = x^2 + x + c$ , find the value of  $c$

18. Write as  $7m^2n^2 + 21m^3$  the product of two factors.

19.



Based on the information in given figure

find the magnitude of  $a$

20. Find the sum of the whole numbers which lie between 101 and 149.

**(20 × 2 = 40 Marks)**

**Part – II**

**Answer the all questions.**

01.

a.  $4, 10, 16, 22, \dots$

Consider the above number pattern.

- i. Find the first term of the above pattern.
- ii. Find the common difference.
- iii. Find the general term of above pattern.

b. The general term of a certain number pattern  $T_n = \frac{n}{4} + 1$ ,

- i. Write first three terms of the number pattern which is represented by above general term.
- ii. Find the common difference.

**(10 Marks)**

02.

a. Simplify

a.  $(\frac{1}{4} + \frac{1}{3}) \div 1\frac{3}{4}$

b.  $4\frac{2}{3} - 1\frac{1}{4} \times 2\frac{2}{3} \div 2\frac{1}{2}$

- b. School environmental club has consist  $\frac{7}{10}$  of grade 9 students, the  $\frac{1}{2}$  of remaining is grade 8 students, and grade 7 students the remaining. If the number of students from grade 7 is six, find the total members of that club?

**(10 Marks)**

03.

a.

Kumar buys a coconut at the price of Rs. 28 per coconut and sells at the price of Rs 38 per coconut.

- i. Find the profit earned by selling one coconut.
  - ii. Find the profit percentage.
  - iii. If Kumar sells 100 coconuts per a day, find the total income which he receives in a month.
  - iv. “The number of coconut can’t change the profit percentage” prove this statement by use examples.
- b. Due to immaturred coconuts, Kumar plans to sell each coconut at the price decreasing by Rs. 3.50. Find the discount percentage offered.

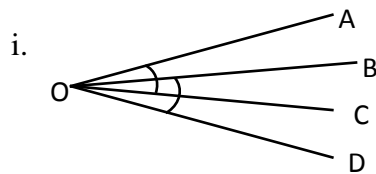
**(10 Marks)**

04.

- i. If  $a = \frac{1}{2}$  and  $b = (-\frac{1}{2})$  find the value of  $a - 4b$
- ii. Expand and simplify
  - a.  $(2x - 3)(3x - 2)$
  - b.  $(1 - 2n)^2$
- iii. If  $(4a + 3)(3a + 4) = 12a^2 + 25a + 12$  verify the above by substitute as  $a = 1$

(10 Marks)

05.

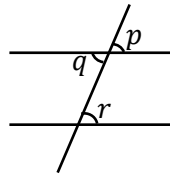


In the given figure

If  $\widehat{AOC} = \widehat{BOD}$

Show that  $\widehat{AOB} = \widehat{COD}$

- ii. In the given figure  
if  $p = r$   
show that  $q = r$



(10 Marks)

06. A cuboid shaped water tank has a rectangle base of area  $24m^2$  and  $3m$  height.

- i. Find its' capacity in  $l$
- ii. When a tap from the water tank constant rate of  $200 l$  per minute. Determine how long after tap is opened the tank become empty.
- iii. Show that  $2\frac{1}{2}$  hours will need to fill with water  $150cm$  height of this tank by above tap is shown in (ii)

(10 Marks)