Visakha Vidyalaya – Colombo 05

First Term Test – 2022

Mathematics

Grade 9

Time : $2\frac{1}{2}$ hours

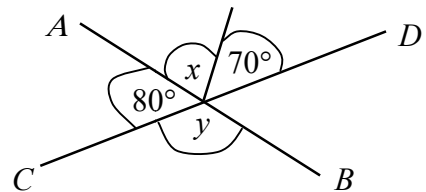**Name / Index Number :** …………………………………………………………………………..…

Part I

* **Answer all questions.**

1. Write next two terms $-5, -10, -15, -20, \ldots\ldots, \ldots\ldots$ of the given progression.

2. Write $\dfrac{5}{8}$ as a percentage.

3. If the cost of $3\,kg$ suger is Rs. 480 find the cost of $7\,kg$ of sugar.

4. *AB* and *CD* are 2 straight lines. Find *x* and *y*.

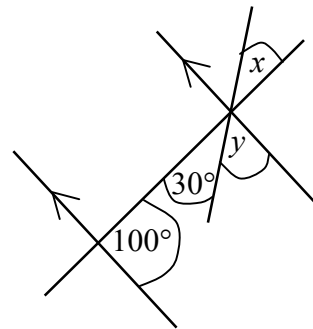**5.** Convert the binary number 111_{two} into base ten number.

6. If $a = -2, b = 4$ and $c = 1$ find the value of $6a - b + 15c$.

7. Find the length of a side of an equilateral triangle, whose perimeter is same as the square of side length $9\,cm$.

8. Simplify. $\dfrac{2}{7} \times \left(\dfrac{1}{3} + \dfrac{5}{6} \right)$

9. Length breadth and height of a cuboid is $10\,cm$, $5\,cm$ and $10\,cm$ resperctively. If this vessel is completely filled with water. Find the volume of water in milliliters.
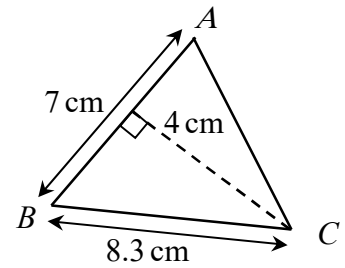
10. Find x and y.

11. Simplify. $(-3) + (-5) - (-4)$

12. Solve. $2(2x - 5) + 17 = 23$

13. How many meters is $\dfrac{3}{5}$ of $1\,km$.

14. Simplify and give the answer in kilograms $6.15\,t \times 3$

15. Find the area of the triangle *ABC*.

A

7 cm

4 cm

B

8.3 cm

C

16. Evaluate. $\sqrt{3^2 \times 5^2 \times 2^4}$

17. Write $33\frac{1}{3}\%$ as a fraction.

18. Find the length of a scale diagram of actual length 15 km drawn to the scale 1 : 200000.

19. Simplify. $0.03411 \div 0.09$

20. Dulara paid Rs. 4,750 when buying a wrist watch worth Rs. 5,000 after a discount. Find the percentage of discount he received.

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Part II

* **Answer all questions.**

1. (a) Mr. Perera spends $\frac{2}{5}$ of his monthly salary for food and $\frac{1}{3}$ of his salary for travel expenses.

   (i) What fraction of the whole salary is spend for food and travel expenses. (2 marks)

   (ii) After spending for food and travel expenses find the remaining amount as a fraction of the whole salary. (2 marks)

   (iii) If he gives half of the remainder to his wife, what fraction of the salary is given to her. (2 marks)

   (iv) If his wife received Rs. 25,000 form his salary. Find the total amount of his salary. (3 marks)

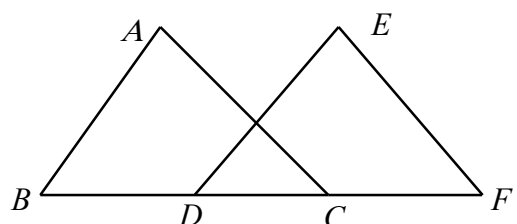   (b) Simplify. $\frac{3}{7} + \left(\frac{1}{2} \text{ of } \frac{4}{5}\right) \div \frac{1}{35}$ (3 marks)

2. (a) In a drill display of inter house sports meet students are positioned in 23 rows according to a pattern with common difference. Such that the first row consists of 9 students, the second row of 14 students, the third row of 19 student, ect.

   (i) Write the number of students in the 5$^{\text{th}}$ row. (2 marks)

   (ii) Write the general term (T_n) for number of students in the nth row. (2 marks)

   (iii) Which row has 64 students starting from the first row? (3 marks)

   (iv) Find the number of students in the last row. (3 marks)

   (b) Find the general term of the number pattern (2 marks)
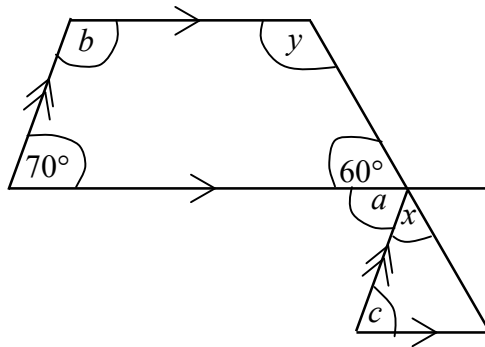
   $-3, -8, -13, ...$

3. (a) Find the factors.
   (i) $x^2 - bx + ax - ab$ (2 marks)

   (ii) $x^2 - 2x - 63$ (2 marks)

   (iii) $16x^2 - 1$ (2 marks)

   (b) Find the value using the knowledge of factors.
   (i) $75^2 - 25^2$ (3 marks)

   (ii) Expand and simplify. $(x + 7)(x - 2)$ (3 marks)

4. (a) In the diagram given below ABC and EDF are triangles and $BDCF$ is a straight line. If $BC = DF$ show that $BD = CF$.

   (03 marks)

(b) Find the magnitude of the angles denoted by unknowns in the diagram given below.
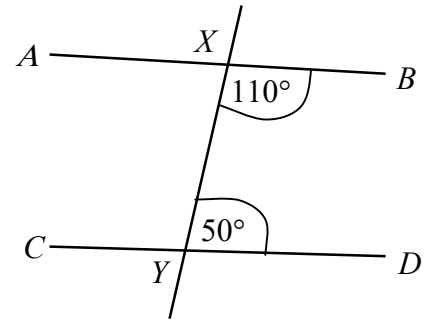

(7 marks)

(c) Are these line *AB* and *CD* are parallel or not?

Write the answer with reasons. (2 marks)

5. (a) Production cost of a chair is Rs. 35,000. The manufacturer marked the selling price in order to obtain a profit of 25% also he says if the payment is done outright 5% discount is given on the marked price.

   (i) Find the marked price of the chair. (2 marks)

   (ii) If the payment is done at outright, find how much the customer has to pay. (3 marks)

   (iii) If the seller sold the chair at outright. Find the percentage of profit received by him. (3 marks)

(b) A company charges a commission of 3%. On the sale of a land worth Rs. 6,000,000 find how much does the land owner receives after paying the commission. (4 marks)

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