

First Term Examination - 2023

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Grade }
ශ්‍රේණිය } 9

Subject }
විෂයය } MATHEMATICS

Paper }
පත්‍රය } I, II

Time }
කාලය } 02 HOURS

Part I

Answer all the questions on this paper itself.

1) The price of 3 exercise books is Rs. 150 . Find the price of 5 such exercise books.

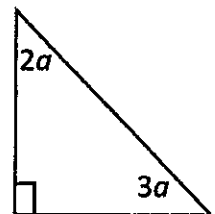
2) 47_{two} Convert to decimals.

3) Simplify. $16 \div \frac{2}{3}$

4) If the production cost of a good is Rs. 12000, calculate the selling price to get 8 % profit.

5) Factorize. $ay + xy + ab + xb$

6) Find the value of 'a'.

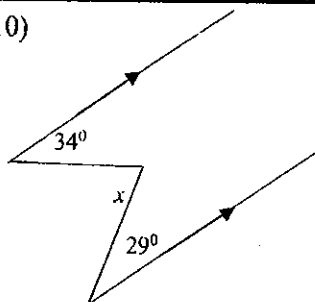


7) Find the 10th term of number pattern given by $3n - 2$.

8) The length breadth and height of a plastic box are 12 cm, 8 cm and 6 cm respectively. Find the volume of plastic box in milliliters.

9) Expand. $(x - 3)(x + 5)$

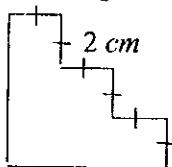
10) Find the value of 'x'.



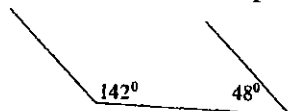
11) How many milliliters is $\frac{4}{5}$ of 2 l.

12) Solve. $2x = 8$

13) Find the perimeter of given figure.



14) Are the lines AB and CD parallel. Give reasons.



15) Factorize. $-18x^2 + 12xy - 6x$



16) $\frac{3}{8}$ Write as a percentage.

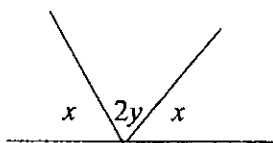
17) Find the value of $b^2 - 4a$, when $a = -2$, $b = 4$.

18) Write 576 as the product of prime numbers.

19) 7, 8, 10, 11, 11, 15, 17 Using this number distribution,

- i) Find the range.
- ii) Find the mode.

20) Find the value of $x + y$.



Part II

Answer to the first question and 4 other questions.

1) a) In a drill display of interhouse sports meet students were positioned as follows.

First row 3 students, second row 7 students, third row 11 students. There are 15 rows arranged at that moment.

- i) Write the number of students in the 4th row and 5th row respectively.
- ii) Obtain the general term (T_n) for the number pattern represented by each row in the drill display.
- iii) Show that the difference in the number of students in 14th row and 9th row is 20.
- iv) Which row has 43 students starting from first row.

b) The starting salary of a government employee is Rs.40000. Every year his salary increases by Rs.3000. Construct an expression to find his salary in the n^{th} year.



2) a) Write the answers for the following by considering $10A0B10_{two}$ as a binary number.

- i) What digits can be represented by B ?
- ii) What is the place value of A ?
- iii) Convert above binary number to decimal number if $A = B = 1$.

b) Simplify.

- i) $101011_{two} + 1111_{two}$
- ii) $100001_{two} - 1111_{two}$

3) a) Mineth travelled by train $\frac{3}{5}$ of a journey and $\frac{1}{4}$ by three-wheeler. He walked remaining distance.

- i) Express the remaining distance after traveling by train as a fraction of the total distance.
- ii) Express the distance which was travelled by train and three-wheeler as a fraction of the total distance.
- iii) Find the distance he walked as a fraction.
- iv) If the distance he walked is 1800 m , find the total distance of journey.

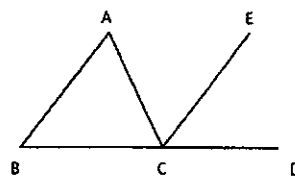
b) Simplify. $2\frac{1}{2} \div (3\frac{1}{2} + 2\frac{2}{3})$

4) The production cost of a table is Rs.45000 . The manufacture obtains Rs.11250 profit by selling the table to a trader.

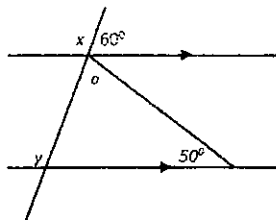
- i) What is the buying price of the table by the trader ?
- ii) What is the profit percentage gain by the manufacture ?
- iii) The trader marks the price of the table by keeping 20% profit . What is the marked price of the table ?
- iv) When selling the table 5% discount is given to the customer . Find the selling price of the table by trader.
- v) Find the price difference of the table between the production cost and the buying price by customer.

5) a) In the following diagram $\hat{BAC} = \hat{ACE}$.

- i) What is the relationship between AB and CE .
- ii) Write an angle equal to \hat{ABC} .
- iii) Show that , $\hat{ACD} = \hat{ABC} + \hat{BAC}$.

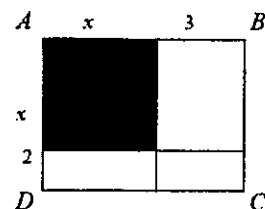


b) Using the data of given diagram, find the values of x , y and a .



6) a) $ABCD$ is a rectangle.

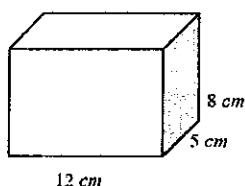
- i) Write the length of rectangle $ABCD$ using term x .
- ii) Write the breadth of rectangle $ABCD$ using term x .
- iii) Write an expression to find the area of rectangle $ABCD$ and expand it.



b) Factorize the following expressions.

- i) $t^2 - 7t - 60$
- ii) $16x^2 - 49y^2$

7) a) Find the volume of given cuboid.



b) The length breadth and height of a certain milk tank are 15 m , 12 m , and 6 m respectively.

- i) Find the volume of the tank.
- ii) Find the capacity of the tank in liters.
- iii) Find the capacity of the tank in liters if the tank is filled with milk only up to 3 m .
- iv) The volume of milk already filled in the tank pumped into cuboid shaped tank with base area 108 m^2 . Find the height of the milk in the cuboid shaped tank.

