

P.V.G.'s  
**Muktangan English School & Jr. College, Pune - 9**  
**Annual Examination (2024-25)**  
**STD IX**

Subject : Mathematics (Part I)

Marks - 50

Date : 03.04.2025

Time : 8.00 am to 10.00 am

**Q1. A) Attempt the following by choosing the correct alternative given and write the correct alternative alphabet. (e.g 1-B) (4)**

1. What is the lower limit of class 25 - 35 ?  
a) 25                      b) 30                      c) 35                      d) 60
2. What is the mean proportional of 4 and 25?  
a) 6                      b) 8                      c) 10                      d) 12
3.  $3y + 7 = 22 \therefore y = \square$   
a) 15                      b) 29                      c) 5                      d) 45
4. A person has earned his income during the financial year 2017-18. Then his assessment year is \_\_\_\_\_.  
a) 2015-16              b) 2016-17              c) 2017-18              d) 2018-19

**B) Attempt the following subquestions. (4)**

1. A hockey player has scored following number of goals in 6 matches.  
5, 4, 0, 2, 1, 4  
Find the mode of the data.
2. Observe the table given below. Check and decide whether the individuals have to pay income tax.

Individuals	Age (years)	Taxable Income (₹)	Will have to pay income tax or not
Mr Kulkarni	44	5,27,000	
Mr Bajaj	81	4,00,000	

3. Write one solution of the equation  $x + y = 5$
4. Convert the ratio  $\frac{7}{10}$  into percentage.

**Q2. A) Attempt any two of the following activities by filling in the boxes. (4)**

1. Alka saves 10% of the money that she receives every month. She saves Rs.120 every month. How much money does she get monthly?

**Solution :**

Let the total amount received by Alka each month be ₹ x.

She saves ₹ 120 per month.

$$\therefore \boxed{\phantom{00}} \% \text{ of } x = \boxed{\phantom{00}}$$

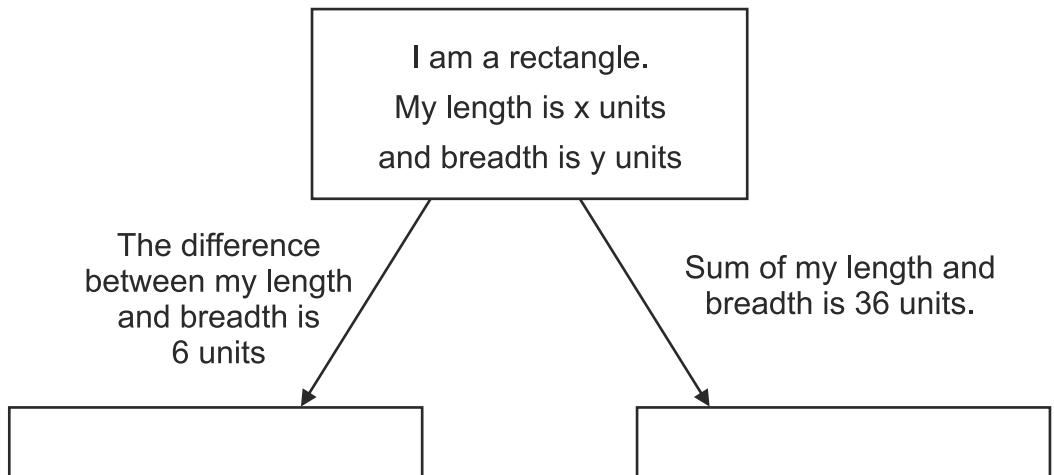
$$\therefore \frac{10}{100} \times x = 120$$

$$\therefore x = \frac{\boxed{\phantom{00}} \times 100}{10}$$

$$\therefore x = \boxed{\phantom{00}}$$

$$\therefore \text{Amount received by Alka each month is ₹ } \boxed{\phantom{00}}$$

2. There are instructions written near the arrows in the following diagram. From this information form suitable equations and write in the boxes indicated by arrows.



3. Find the ratio of circumference of circle with radius 'r' to its area.

**Solution :**

Ratio of circumference of circle to area of circle

$$= \frac{\text{circumference of circle}}{\text{area of circle}}$$

$$= \frac{\boxed{\phantom{0000}}}{\pi r^2}$$

$$= \frac{\boxed{\phantom{0000}}}{r}$$

$$= \boxed{\phantom{0000}} : \boxed{\phantom{0000}}$$

**B) Attempt any four of the following subquestions. (8)**

1. Three persons can build a small house in 8 days. To build the same house in 6 days, how many persons are required?

2. Solve the following simultaneous equations to find the value of x.

$$2x + y = 5 ; 3x - y = 5$$

3. Find the mean of : 25, 30, 27, 23 and 25.

4. Compare the following pair of ratios:

$$\frac{5}{3} , \frac{4}{7}$$

5. Hari invested ₹ 1,20,000 in a mutual fund for 2 years. After 2 years, he got ₹ 1,92,000. Find the profit incurred.

**Q3. A) Complete any one of the following activities. (3)**

1.  ABCD is a parallelogram. The ratio of  $\angle A$  and  $\angle B$  is 5 : 4. Find the measure of  $\angle A$ .

**Solution :**

Let the common multiple of the given ratio be x.

The ratio of measures of  $\angle A$  and  $\angle B$  is 5 : 4

$$\therefore m \angle A = 5x^\circ \text{ and } m \angle B = 4x^\circ$$

ABCD is a parallelogram

$\therefore m \angle A + m \angle B = \boxed{\phantom{000}}$  — (Adjacent angles of a parallelogram are  $\boxed{\phantom{000}}$  )

$$\therefore 5x^{\circ} + 4x^{\circ} = \boxed{\phantom{000}}$$

$$\therefore 9x^{\circ} = \boxed{\phantom{000}}$$

on solving,

$$x = \boxed{\phantom{000}}$$

$$\begin{aligned} \therefore \text{The measure of } \angle A &= 5x^{\circ} \\ &= \boxed{\phantom{000}} \text{ (After substituting for } x) \end{aligned}$$

2. Find the class width and class mark for class 100-200

**Solution :**

$$\text{Upper class limit} = \boxed{\phantom{000}}$$

$$\text{Lower class limit} = 100$$

$$\text{Class width} = \text{Upper class limit} - \text{Lower class limit}$$

$$= \boxed{\phantom{000}} - 100$$

$$= \boxed{\phantom{000}}$$

$$\text{Class mark} = \frac{\text{upper class limit} + \text{lower class limit}}{2}$$

$$= \frac{\boxed{\phantom{000}} + 100}{2}$$

$$= \frac{\boxed{\phantom{000}}}{2}$$

$$= \boxed{\phantom{000}}$$

**B) Attempt any two of the following subquestions.****(6)**

1. Sameer spent 90% of his income and donated 3% for socially useful causes. If he is left with ₹ 1750 at the end of the month, what was his actual income?
2. If  $\frac{a}{b} = \frac{8}{5}$ , then find the value of  $\frac{a^2 - b^2}{b^2}$
3. The total number of lions and peacocks in a certain zoo is 50. The total number of their legs is 140. Then find the number of lions and peacocks in the zoo.
4. Following are few observations arranged in ascending order.

2, 3, 5, 9,  $x + 1$ ,  $x + 3$ , 14, 16, 19, 20

If the median of the data is 11, find the value of  $x$ .

**Q4. Attempt any two of the following subquestions.****(8)**

1. Draw the percentage bar diagram for the following.

Division	Number of Boys	Number of girls
A	20	30
B	24	36
C	35	35

2. If  $5x = 4y$ , then find the value of the ratio.

$$\frac{3x^2 + y^2}{3x^2 - y^2}$$

3. Mr. Chopra is 70 years of age. Last year his annual income was ₹ 13,25,000. How much is his taxable income? How much tax does he have to pay? (Note : Refer to the following table).

Senior Citizen (Age 60 to 80 years)

Taxable Income slabs	Income Tax	Education cess	Secondary and higher Education cess
More than ₹ 10,00,000	₹ 1,10,000 + 30% (on taxable income minus ten lakh)	2% of Income Tax	1% of Income Tax

**Q5. Attempt any one of the following subquestions.**

**(3)**

1. The following table shows information regarding marks in science, obtained out of 40 by 50 students. Prepare less than type cumulative frequency table and answer the following questions.

Class	Frequency
0-10	2
10-20	12
20-30	20
30-40	16

1. How many students obtained less than 30 marks?
  2. How many students obtained less than 10 marks?
2. If  $(a + b + c)(a - b + c) = a^2 + b^2 + c^2$ , show that a,b,c are in continued proportion.

