

SECOND TERM EXAM -2022-23

Time-2.00 Hrs.)

Class- 9th

(Marks-40)

Subject- Maths-I

- Note : i) All questions are compulsory.
ii) Diagrams should be drawn wherever necessary.
iii) Use of calculator is not allowed.

Q. 1-A) Choose the correct alternative answer for each of the following questions.

04

- 1) A person has earned his income during the financial year 2017-18. Then his assessment year is _____
A) 2016-18 B) 2018-19 ~~C) 2017-18~~ D) 2015-16
- 2) What is the upper class limit for the class 30-40
A) 35 ~~B) 40~~ C) 30 D) Non of these.
- 3) If $8x + 7y = 11$ and $7x + 8y = 4$ then what is the value of $x + y$?
~~A) 1~~ B) 7 C) 15 D) 4
- 4) The mean proportional of 4 and 25 is _____
A) 6 B) 8 ~~D) 10~~ D) 12

B) Solve the following sub-questions.

04

- 1) ~~Ajay~~ Ajay is younger than Vijay by 5 years. If Ajay's age is 25 years then what is Vijay's age.
- 2) ~~Write~~ Write any two solutions of the equation.
 $x + y = 9$
- 3) Snehal receives Rs. 27,000 per month. She spends 90% of this money. What amount does she save.
- 4) Convert the ratio 5:25 in percentage ratio.

Q. 2-A) Complete the following activity (any two)

04

- 1) If $\frac{a}{b} = \frac{2}{3}$, then find the value of the expression $\frac{a^3 + b^3}{b^3}$

Activity : $\frac{a}{b} = \frac{2}{3}$

$\therefore \frac{a^3}{b^3} = \frac{2^3}{3^3}$ ----- (cubing both sides)

$\therefore \frac{a^3}{b^3} = \frac{\boxed{}}{27}$

By componendo

$$\frac{a^3 + b^3}{\square} = \frac{8 + \square}{27}$$

$$\therefore \frac{a^3 + b^3}{b^3} = \frac{\square}{27}$$

- 2) Complete the following activity to solve the simultaneous equation $2x + y = 8$ and $3x - y = 7$.

$$2x + y = 8 \text{ ----- (1)}$$

$$+ 3x - y = 7 \text{ ----- (2)}$$

$$\hline \square + 0 = 15 \text{ --- (Adding equation (1) and (2))}$$

$$x = \frac{15}{\square}$$

Substituting $x = 3$ in equation (1)

$$2 \times \square + y = 8$$

$$\therefore 6 + y = 8 \quad \therefore y = \square$$

- 3) Shri. Lalbhai invested Rs. 4,00,000 in some industry. After 1 year he received Rs. 5,20,000 from the industry. Putting aside the original investment he invested his gain in mutual fund and shares in the ratio 3:2. How much did he invested in shares?

Activity : Profit after a year

$$= \text{Rs. } \square - \text{Rs. } \square$$

$$= \text{Rs. } 1,20,000$$

$$\begin{aligned} \text{The amount invested in shares} &= \frac{3}{2} \times \text{Rs. } \square \\ &= \square \end{aligned}$$

B) Answer the following question. (any four)

08

- 1) In a school, 12 students of 9th standard, were told to measure the length of the pencils in their compass boxes in centimeters. The data collected was as follows.

16, 15, 7, 4.5, 6.5, 7, 6, 5.5, 5, 6.5, 6, ,10.

By taking exclusive classes 0-5, 5-10, 10-15.... prepare a grouped frequency distribution table.

2) Solve : $x + y = 14$ and $x - y = 2$

- 3) Write the following ratios in the reduced forms

a) Radius to the diameter of a circle. b) Rs. 700, Rs. 200.

4) Compare the following pair of ratio. $\frac{\sqrt{5}}{3}$, $\frac{3}{\sqrt{7}}$

- 5) Write any two linear equations in two variables using variables x and y .

SKV/(9)-Math-I-(2)

Q. 3-A) Fill in the blanks to complete the activity. (Any one)

03

1) The length of a rectangle is 4 cm more than its breadth. The perimeter of the rectangle is 40 cm. complete the following activity to find the length and breadth of the rectangle.

Activity : Let the length and breadth of the rectangle be x cm and y cm respt.

from the first condition.

$$x = y + 4 \quad \therefore x - y = 4 \text{ -----(1)}$$

The perimeter of the rectangle

$$= \boxed{} \text{ ----- (formula)}$$

from the second condition

$$2(x + y) = \boxed{}$$

$$\therefore x + y = \boxed{}$$

Adding equation (1) and (2)

$$\begin{array}{r} x - y = 4 \\ + \quad x + y = 20 \\ \hline \boxed{} + 0 = 24 \end{array}$$

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

Substituting $x = 12$ in equation (2)

$$12 + y = 20 \quad \therefore y = \boxed{} \text{ cm.}$$

2) Mr. Naik is 58 years old. His gross total income is Rs. 5,00,000. Complete the following activity to find the tax payable by Mr. Naik.

Activity : As per table 1, exemption up to Rs. 2,50,000

$$\begin{aligned} \text{Taxable income} &= 5,00,000 - 2,50,000 \\ &= \text{Rs. } \boxed{} \end{aligned}$$

5% in come tax on taxable income

$$\begin{aligned} &= \frac{5}{100} \times \text{Rs. } 2,50,000 \\ &= 12,500 \text{ Rs. ----- (1)} \end{aligned}$$

2% education cess on Rs. 12,500

$$\begin{aligned} &= \frac{2}{100} \times 12,500 \\ &= \text{Rs. } \boxed{} \text{ ----- (2)} \end{aligned}$$

1% secondary and higher secondary education cess on Rs. 12,500

$$\begin{aligned} &= \frac{1}{100} \times 12,500 \\ &= \text{Rs. } \boxed{} \text{ ----- (3)} \end{aligned}$$

$$\begin{aligned} &\text{Total income tax} \\ &= \text{Rs. } \boxed{} + \text{Rs. } \boxed{} + \text{Rs. } \boxed{} \\ &= \text{Rs. } 12,875 \text{ — (from (1), (2), (3))} \end{aligned}$$

B) Solve following Sub-questions (any two)

06

- 1) A hockey player scored following number of goals in 9 matches.
5, 4, 0, 2, 2, 4, 4, 3, 3
find (i) mean (ii) Median and (iii) mode of the data
- 2) The total cost of 8 books and five pens is 420 rupees and the total cost of 5 books and 8 pens is 321 rupees. Find the cost of 1 book and 2 pens.
- 3) If $\frac{a}{b} = \frac{2}{3}$ then find the value of $\frac{4a + 3b}{3b}$
If $b = 9$ then find the value of 'a'
- 4) If $\frac{ax + by}{x + y} = \frac{bx + az}{x + z} = \frac{ay + bz}{y + z}$ and $x + y + z \neq 0$ then show that each ratio is $\frac{a + b}{2}$

Q. 4— Solve the following sub questions. (any two)

08

- 1) Mr. Kartarsingh (age 48 years) works in a private company. His monthly income after deduction of allowances is Rs. 42,000 and every month he contributes Rs. 3000 to GPF. He has also bought Rs. 15,000 worth of NSC (National Saving Certificate) and donated Rs. 12,000 to the PM'S Relief fund. Compute his income tax. <https://www.maharashtrastudy.com>
- 2) The following table shows the number of buses and trucks in nearest Lakh units. Draw a percentage bar diagram.

Year	Number of trucks	Number of buses
2005–2006	47	9
2007–2008	65	13
2008–2009	60	16
2009–2010	63	18

- 3) Check whether the following numbers are in continued proportion or not.
a) 2, 4, 8 b) 1, 2, 3 c) 9, 12, 16 d) 3, 5, 8

Q. 5— Solve. (any one)

03

- 1) Solve the following simultaneous equation
- $$\frac{x}{3} + \frac{y}{4} = 4 \quad ; \quad \frac{x}{2} - \frac{y}{4} = 1$$
- 2) If $\frac{x}{b+c-a} = \frac{y}{c+a-b} = \frac{z}{a+b-c}$ then show that
 $x(b-c) + y(c-a) + z(a-b) = 0$.

(SKV/(9)-Math-I-(4)