P.V.G.'s

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Unit Test - I (2025-26)

Standard - X

Subject : Mathematics - I | Marks - 20

Date : 07.08.2025 | Time : 9.45 am to 10.45 am

Q1. A) Four alternative answers are given for every subquestions. Choose the proper alternative and write it's alphabet with subquestion number. (2)

(i) For simultaneous equations in two variables x and y, if Dx = 49, Dy = -63, D = -7, then what is value of 'x'?

A) 7 B) -7

C) $\frac{1}{7}$ D) $-\frac{1}{7}$

(ii) For an A.P. if $t_7 = 4$ and d = -4, then value of a = _____.

A) 6 B) 7

C) 20 D) 28

B) Attempt the following subquestions. (2)

(i) Form two simultaneous equations using the following information:

Difference between two acute angles a and b of a right angled triangle is 30^0 (where a > b)

(ii) For an A.P. first term is 10 and common difference is 5, hence state its second and third term.

Q2. A) Attempt the following activity. (Any 1) (2)

(i) Complete the following acitivity to draw graph of 2x - y = 2

x	0	☐
y	☐	-4
(x,y)	☐	☐

(ii) If first term of an AP is 10 and 10^{th} term is 200, then complete the following activity to find the value of S_{10}

→ Solution : We have first term of A.P. a= 10

10^{th} term of AP = t_{10} = 200

We have to find S_{10} = ?

Using $S_n = \frac{\square}{2}(t_1 + t_n)$ _____(formula)

$\therefore S_{10} = \frac{\square}{2}\left(\square\right)$

$\therefore$ On solving we get,

$S_{10} =$ ☐

B) Attempt the following subquestions. (Any 2) **(4)**

(i) Find the value of the determinant.

$$D = \begin{vmatrix} 2\sqrt{3} & 9 \\ 2 & 3\sqrt{3} \end{vmatrix}$$

(ii) Determine stating the reason whether the following sequence is an AP or not? If yes give value of 'd'

$\frac{1}{4}, \frac{3}{4}, \frac{5}{4}, \frac{7}{4}, \ldots\ldots\ldots\ldots\ldots$

(iii) If 49x + 57y = 172 and 57x + 49y = 252, then find value of x+y, without solving for x and y.

Q3. A) Attempt the following activity. (Any 1) **(3)**

(i) Complete the following activity to find number of terms in an

AP : -1, -3, -5, ... -149

→ Solution : Given AP is -1, -3, -5, ... -149

Here a = -1 and d = ☐ ; tn = ☐

Using tn = a + ☐ _____ (formula)

$\therefore$ ☐ = -1 + ☐ _____ (substituting the values)

$\therefore$ On solving we get, n = ☐

$\therefore$ Their are ☐ terms in given A.P

(ii) Complete the following activity to solve the simultaneous equations $4x + 3y = 18$ and $5x - 3y = 9$.

→ Solution : We have

$4x + 3y = 18$ ---------- (1) and $5x - 3y = 9$ ---------- (2)

Adding Equation (1) and (2), we get;

$4x + 3y = 18$

$+ 5x - 3y = 9$

$\square x = 27$

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

$\therefore x = \square$ ---------- (3)

Substituting (3) in (1), we get;

$4 \times \square + 3y = 18$

$\therefore 3y = 18 - \square$

on solving, we get

$\therefore y = \square$

$\therefore (x, y) = \left(\square, \square\right)$ is the solution.

B) Attempt the following subquestions. (Any 1) **(3)**

(i) In a factory the ratio of salary of skilled and unskilled workers is 5:3. Total salary of one day of both of them is Rs. 720. Find the daily wages of skilled and unskilled workers.

(ii) Find how many Natural numbers between 1 to 145 are divisible by 4.

Q4. Attempt the following subquestions. (Any 1) **(4)**

(i) Solve $\frac{4}{x-y} + \frac{1}{x+y} = 3$; $\frac{2}{x-y} - \frac{3}{x+y} = 5$

(ii) Divide 207 in 3 parts such that all parts are in A.P and product of two smaller parts will be 4623.

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