

(1)

NAME - M- SOHRAB

ID - 14589

Subject - Business maths.

Submitted to Sir^{Dr} Liaqat Ali

Ans-

(i) (e)

(ii) (b)

(iii) (b)

(iv) (e)

(v) (c)

(vi) (e)

(vii) (e)

(viii) (e)

(ix) (e)

(x) (B)

Q. 20 - (a)

Sol: Age of Son = x , Age of Father = y

According to first condition

$$4x = y \Rightarrow 4x - y = 0 \rightarrow \text{eqn (1)}$$

According to 2nd condition

$$2(x + 24) = y + 24$$

$$\Rightarrow 2x + 48 = y + 24$$

$$\Rightarrow 2x - y = 24 - 48$$

$$2x - y = -24 \rightarrow \text{eqn (2)}$$

Now subtracting equation (2) from (1)

$$4x - y = 0$$

$$2x - y = -24$$

$$\begin{array}{r} - \quad + \quad + \\ \hline \end{array}$$

$$2x = 24$$

$$2x = 24$$

$$\Rightarrow x = \frac{24}{2} = 12$$

$$\Rightarrow \boxed{x = 12}$$

Now find out y we will put value of x in eqn (1)

$$4(12) - y = 0$$

$$48 - y = 0$$

$$\Rightarrow \boxed{y = 48} \text{ Ans.}$$

Present age of Father = $y = 48$

Present age of Son = $x = 12$.

(3)

Q28-(b)

$$x + 3y = -1/3$$

$$4x - 1/5y = 2/2$$

let

$$x + 3y = -1/3 \rightarrow \text{eq(1)}$$

$$4x - 1/5y = 2/2 \rightarrow \text{eq(2)}$$

Now multiply eq(1) by 4 then sub 2 from (1)

$$\cancel{4x} + 12y = -4/3$$

$$\pm \cancel{4x} - 1/5y = \pm 2/2$$

$$12y + 1/5y = -4/3 - 1$$

$$\frac{60y + 1y}{5} = \frac{-4-3}{3}$$

$$\frac{61y}{5} = -\frac{7}{3}$$

$$61y = -\frac{7 \times 5}{3}$$

$$61y = -\frac{35}{3}$$

$$\Rightarrow y = -\frac{35}{61 \times 3}$$

$$y = -\frac{35}{183}$$

Now putting value at y in eq(2)

next page \rightarrow

(4)

$$4x - \frac{1}{8} \left(-\frac{35}{183} \right) = \frac{1}{2}$$

$$4x + \frac{7}{183} = 1$$

$$\Rightarrow 4x = 1 - \frac{7}{183}$$

$$4x = \frac{183 - 7}{183}$$

$$4x = \frac{176}{183}$$

$$\Rightarrow x = \frac{176 \cdot 4}{183 \times 4}$$

$$\boxed{x = \frac{44}{183}}$$

Now

$$x = \frac{44}{183} \quad \text{and} \quad y = \frac{35}{183}$$

Q38-(9)

$$\frac{x^{-3}}{x^{-3/2}} + \frac{x}{x^{3/4}y^2} \times \frac{x^2y^3}{y^{1/3}}$$

Soln-

$$\frac{x^{-3}}{x^{-3/2}} + \frac{x \cdot x^2y^3}{x^{3/4} \cdot y^2 \cdot y^{1/3}}$$

$$= \frac{x^{-3}}{x^{-3/2}} + x^3y^3y^2 \cdot x^{-3/4} \cdot y^{1/3}$$

$$= \frac{x^{-3}}{x^{-3/2}} + x^{3-3/4} \cdot y^{-3+2+1/3}$$

$$= x^{-3} \cdot x^{3/2} + x^{12-3} \cdot y^{-4/3}$$

$$= x^{-6+3} + x^{9/4} y^{-4/3}$$

$$= \boxed{x^{-3/2} + \frac{x^{9/4}}{y^{4/3}} \text{ Ans.}}$$

(6)

Q3:-

Part(B)

Find the value of n by using

logarithmic laws
$$n^3 = \frac{7^3 \times (0.4500)^2}{0.0004 \times (0.0205)^4}$$

Sol:-

$$n^3 = \frac{7 \times 7 \times 7 (0.4500 \times 0.4500)}{0.0004 (0.0205)^4}$$

$$n^3 = \frac{69.4575}{7.0644 \times 10^{11}}$$

$$n^3 = 69.457 \times 7.0644 \times 10^{11}$$

$$(n^3)^{1/3} = (69.457 \times 7.0644 \times 10^{11})^{1/3}$$

$$n = 9943.67 \text{ Ans.}$$

(7)

Q48- $U = \{2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22\}$
 $A = \{4, 8, 12, 16\}$. $B = \{4, 8, 12\}$
 $C = \{2, 4, 6, 8, 10, 12, 14, 16, 18\}$.

show that

(a) $(A \cup B)^c = A^c \cap B^c$

(b) $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$

(a) $(A \cup B)^c = A^c \cap B^c$

$$A \cup B = \{4, 8, 12, 16\} \cup \{4, 8, 12\}$$

$$A \cup B = \{4, 8, 12, 16\}$$

$$(A \cup B)^c = U \setminus (A \cup B) = \{2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22\} \setminus \{4, 8, 12, 16\}$$

$$(A \cup B)^c = \{2, 6, 10, 14, 18, 20, 22\}$$

$$A^c = U \setminus A = \{2, 4, 6, 8, 10, 12, 14, 18, 20, 22\} \setminus \{4, 8, 12, 16\}$$

$$A^c = \{2, 6, 10, 14, 18, 20, 22\}$$

$$B^c = U \setminus B = \{2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22\} \setminus \{4, 8, 12\}$$

$$B^c = \{2, 6, 10, 14, 16, 18, 20, 22\}$$

$$A^c \cap B^c = \{2, 6, 10, 14, 18, 20, 22\} \cap \{2, 6, 10, 14, 16, 18, 20, 22\}$$

$$A^c \cap B^c = \{2, 6, 10, 14, 18, 20, 22\}$$

(8)

$$(b) \quad A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$$

$$A \cap (B \cup C)$$

$$B \cup C = \{4, 8, 12\} \cup \{2, 4, 6, 8, 10, 12, 14, 16, 18\}$$

$$B \cup C = \{2, 4, 6, 8, 10, 12, 14, 16, 18\}$$

$$A \cap (B \cup C) = \{4, 8, 12, 16\} \cap \{2, 4, 6, 8, 10, 12, 14, 16, 18\}$$

$$\{4, 8, 12, 16\}$$

$$A \cap (B \cup C) = \{4, 8, 12, 16\}$$

$$(A \cap B) \cup (A \cap C) = ?$$

$$A = \{4, 8, 12, 16\}, \quad B = \{4, 8, 12\}$$

$$A \cap B = \{4, 8, 12, 16\} \cap \{4, 8, 12\}$$

$$A \cap B = \{4, 8, 12\} \rightarrow (1)$$

$$A \cap C = \{4, 8, 12, 16\} \cap \{2, 4, 6, 8, 10, 12, 14, 16, 18\}$$

$$A \cap C = \{4, 8, 12, 16\} \rightarrow (2)$$

eq (1) and eq (2)

$$(A \cap B) \cup (A \cap C) = \{4, 8, 12\} \cup \{4, 8, 12, 16\}$$

$$(A \cap B) \cup (A \cap C) = \{4, 8, 12, 16\}$$

$$\text{Therefore } A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$$

Proved.

(9)

Date _____

Q5:-

(a)

List Price - discount

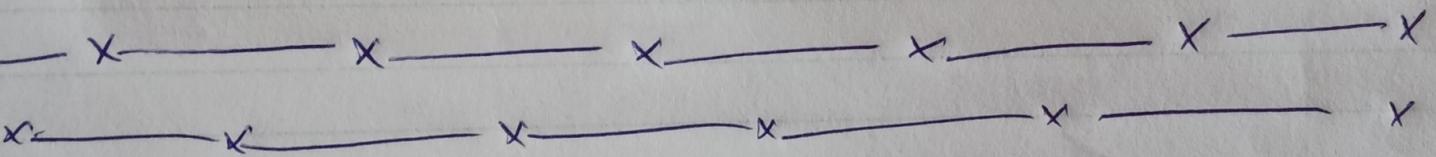
$$\frac{20}{100} = 0.2$$

$$\text{Net Cost} = 150 - 0.2(150)$$

$$\text{Net Cost} = 150 - 30$$

$$\text{Net Cost} = 120$$

Ans.



(10)

Q5. (c)

Cost Price = \$10

Markup = \$6.20

Find

markup Percent on cost, also
Find Selling Price.

Sol:-

$$\text{Markup} = \text{S.P.} - \text{Cost.}$$

$$\$6.20 = \text{S.P.} - \$10$$

$$\Rightarrow \$6.20 + \$10 = \text{S.P.}$$

$$\boxed{\$16.20 = \text{S.P.}}$$

$$\% \text{ M. UP} = \frac{\text{M. UP}}{\text{Cost}} \times 100$$

$$\% \text{ M. UP} = \frac{6.20}{10} \times 100$$

$$\% \text{ M. UP} = 62\%$$

Ans