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Group: BBA
Subject: Business Mathematics
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Attempt all questions

Question No. 1

(ii) The solutions of $|4x-6| = -3$ are

- a. $x=6, x=2$ b. $x=-3, x=4$ c. $x=-2, x=-4$
d. $x=-3$ Only **(e)** None of these.

(iii) The equation $P(x) - C(x)$ shows

- a. Linear Cost function **(b)** linear profit function
c. Linear revenue function. None of them

(iii). The sum of two number is 40 and difference is 20 then the number are =

- a. (33, 10) **(b)** (30, 10) c. (40, 30) d. $5\sqrt{3}$

iv. $\sqrt{5^2 + 11} - 6 =$

- a. 11 b. 10 c. 11.2 d. 41 **(e)** None

v. A stairs make an angle of inclination $\theta = 60^\circ$ with the horizontal

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vi. $\frac{1}{\sqrt{3}}$ b. $\frac{2}{\sqrt{3}}$ c. $\frac{\sqrt{3}}{2}$ d. None of them

vii. if $f(x) = x-1$ and $g(x) = x^2$ then $(f \circ g)(x) =$
a. x^2 b. $x-1$ c. $(x+1)^2$ d. x^2+1 e. None of them

viii. The domain of a Curve $y = \sqrt{-1+x^2}$ is
a. $(-1, 1)$ b. $[-1, 1]$ c. $(-1, 1]$ d. $[-1, 1]$ e. None of them

ix. $\begin{vmatrix} -7 & -5 \\ 4 & -4 \end{vmatrix} =$

a. 36 b. -4 c. 4 d. 0 e. None of them

x. A painter can paint $200m^2$ wall in 10 hours. Then the time required to paint $2000m^2$ wall will be.

a. 60 hours b. 90 hours c. 30 hours d. None of them

xi. if 20% of cost price \$400 is equal to 50% of sale price. then sale price will be.

a. \$800 b. \$80 c. \$200 d. None of them

Attempt all question.

Question No 2:

(a) The sum of ages of a girl and her brother is 20 years. Two years ago her age was three times age of her brother. Find the present age of girl and her brother.

Answer:

Age of girl = x

Age of brother = y

$$x + y = 20$$

$$x = 20 - y \quad (1)$$

2 years ago

$$\text{boy} = y - 2$$

$$\text{girl} = x - 2$$

Since girl was 3 times ago.

$$x - 2 = 3(y - 2)$$

$$x - 2 = 3y - 6$$

Put eq (1).

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$$20 - y - 2 = 3y - 6$$

$$20 - 2 = 3y + y - 6$$

$$18 = 4y - 6$$

$$18 + 6 = 4y$$

$$\frac{24}{4} = \frac{4y}{4} = \boxed{y = 6}$$

$y = 6$ put in eq (1)

$$x = 20 - y$$

$$x = 20 - 6 \Rightarrow \boxed{x = 14}$$

The age of girl is 14 year

The age of brother is 6 year



Question No. 4.

U : The set of odd number less than 25

A : The set of number divisible by 3 less than 19.

B : The set of number divisible by

5 or 10 less than 15.

C : The set of number with its multiple of 3 and less than 21.

the find the following.

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

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

$U = \{0, 1, 3, 5, 7, \dots, 25\}$

$A = \{3, 6, 9, 12, 15, 18\}$

$B = \{5, 10, 15\}$

$C = \{3, 6, 9, 12, 15, 18, 21\}$

a Solution:-

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

$A \cup B = \{3, 6, 9, 12, 15, 18\} \cup \{5, 10, 15\}$

$A \cup B = \{3, 6, 9, 12, 15, 18, 5, 10\}$

$(A \cup B)^c = U - A \cup B$

$= \{0, 1, 3, 5, 7, \dots, 25\} - \{3, 6, 9, 12,$

$$(A \cup B)^c = \{0, 2, 7, 11, 13, 17, 19, 21, 23, 25\}$$

$$\text{R.H.S} = (A^c \cap B^c)$$

$$A^c = V - A$$

$$A^c = \{0, 1, 3, 5, 7, \dots, 25\} = \{3, 6, 9, 12, 15, 18\}$$

$$B^c = \{0, 1, 5, 7, 11, 13, 17, 19, 21, 23, 25\}$$

$$B^c = V - B$$

$$B^c = \{0, 1, 3, 5, 7, \dots, 25\} = \{5, 10, 15\}$$

$$B^c = \{0, 1, 3, 7, 9, 11, 13, 17, 19, 21, 23, 25\}$$

$$A^c \cap B^c = \{0, 1, 5, 7, 11, 13, 17, 19, 21, 23, 25\} \\ \cap \{0, 1, 3, 7, 9, 11, 13, 17, 19, 21, 23, 25\}$$

$$A^c \cap B^c = \{0, 1, 7, 11, 13, 17, 19, 21, 23, 25\}$$

$$\text{L.H.S} = \text{R.H.S}$$

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

$$\text{L.H.S} =$$

$$B \cup C = \{5, 10, 15\} \cup \{3, 6, 9, 12, 15, 18, 21\}$$

$$B \cup C = \{3, 5, 6, 9, 10, 12, 15, 18, 21\}$$

$$A \cap (B \cup C) = \{3, 6, 9, 12, 15, 18\} \cap \{3, 5, 6, 9, 10, 12, 15, 18, 21\}$$

$$A \cap (B \cup C) = \{3, 6, 9, 12, 15, 18\}$$

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$$\text{R.H.S} = (A \cap B) \cup (A \cap C)$$

$$A \cap B = \{3, 6, 9, 12, 15, 18\} \cap \{5, 10, 15\}$$

$$A \cap B = \{15\}$$

$$A \cap C = \{3, 6, 9, 12, 15, 18\} \cap \{3, 6, 9, 12, 15, 18\}$$

$$A \cap C = \{3, 6, 9, 12, 15, 18\}$$

$$(A \cap B) \cup (A \cap C) = \{15\} \cup \{3, 6, 9, 12, 15, 18\}$$

$$(A \cap B) \cup (A \cap C) = \{3, 6, 9, 12, 15, 18\}$$