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PAPER: BUSINESS MATHEMATICS

DATE: 29TH September 2020

ID: 13240

MCQS ANSWERS

i. E
ii. B
iii. B
iv. E
v. D
vi. E
vii. A
viii. E
ix. E
x. D

Q2 Part B Answer

Let's solve for x.

$X + 3y = -\frac{1}{3}$

Step 1: Add -3y to both sides.

$X + 3y + (-3y) = \frac{-1}{3} + (-3y)$

$x = -3y + \frac{-1}{3}$

Answer:

$X = -3y + \frac{-1}{3}$

Let's solve for y.

$x+3y = -1 \div 3$

Step 1: Add -x to both sides.

$x+3y + (-x) = -1 \div 3 + (-x)$

$3y = -x + -1 \div 3$

Step 2: Divide both sides by 3.

$3y \div 3 = -x = -\frac{-x + \frac{-1}{3}}{3}$

Answer:

$Y=\frac{-1}{3}x+\frac{-1}{9}$

Equation 2

$4x-\frac{1}{5}=\frac{2}{2}$

Step 1: Simplify both sides of the equation.

4x+1÷5 =1

Step 2: Add 1/5 to both sides.

4x + -1/5 + 1/5 = 1=1/5

4x= 6/5

Step 3: Divide both sides by 4.

$\frac{4x}{4}=\frac{6/5}{4}$

Answer

x=3/10

Q2 Part A

Solution

Let x be the age of his son now, and then the age of the father is 4x.

In 20 years,

The son's age = x + 24

The father's age = 4x + 24

As in 24 years the father will be twice as old as his son, we can set up an equation:

$$4x + 24 = 2(x + 24)$$

Solving the equation for x, we have

$$4x + 24 = 2(x+24)$$

$$=2x + 48$$

Subtract 2x from both sides

This comes to

$$2x + 24 = 48$$

Now subtract 24 from both sides

This comes to

$$2x = 24$$

Now divide both sides by 2

We get

x = 12

So the age of his son now is 12, and the age of the father now is 48.

Q5: a. List price = $150

Trade discount = 20%, Find the net cost.

c. Cost price = $10

Markup = $6.20

Find markup percent on cost, also find Selling price

Solution:

List price = $150

Trade Discount = 20%

Cost =?

Formula

C= S (1−P)

C=$150(1-0.20)

C=$150(0.8)

C=$120

Part B

Cost Price = $150

Markup = $6.20

Markup percentage =?

Formula

C=S (1-P)

For selling price we have

Sale price = cost price + profit

So we have

Sale price = $150 + $6.20

Sale price = $156.20

Now for mark up

C=S (1-P)

$150 =$156.2 (1-P)

$150÷156.2 = 1-P

P= 1- 150 ÷ 156.2

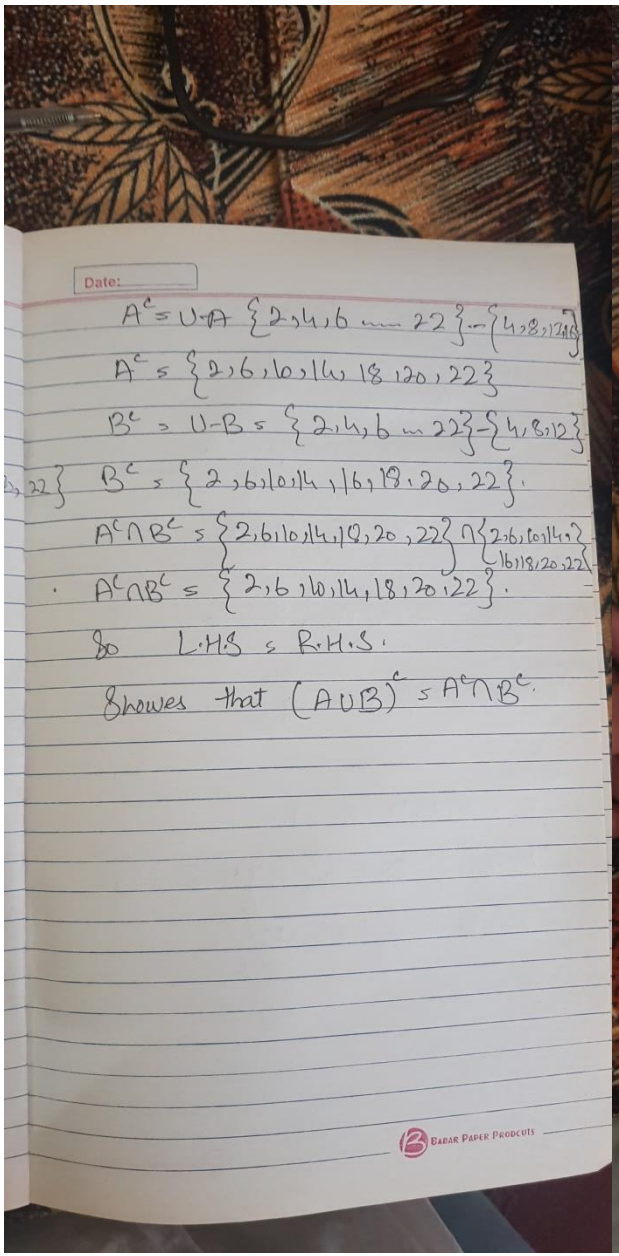
$$P = \frac{156.2-150}{156.2}$$

$$P = \frac{6.2}{156.2}$$

P = 0.039 × 100

P = 3.9%

Markup is 3.9 % Answer



Date:

$A^c = U - A \{2,4,6 \dots 22\} - \{4,8,12,16\}$

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

$B^c = U - B = \{2,4,6 \dots 22\} - \{4,8,12\}$

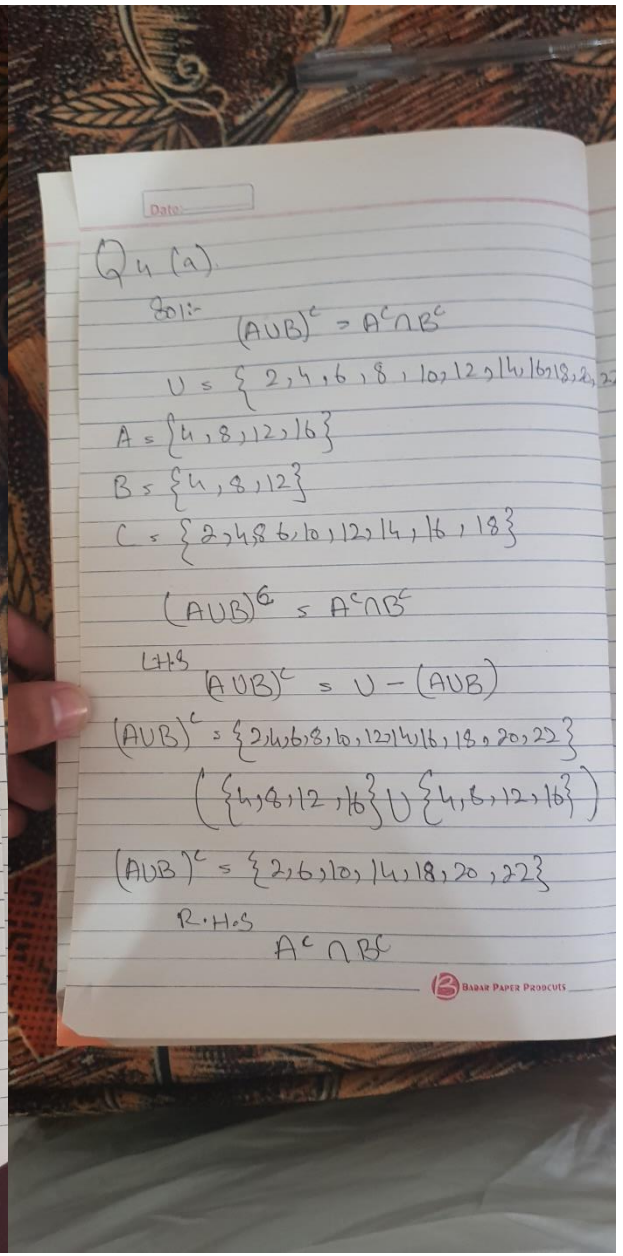
$B^c = \{2,6,10,14,16,18,20,22\}$.

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

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

So L.H.S = R.H.S.

Shows that $(A \cup B)^c = A^c \cap B^c$.



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Q4 (a).

Sol:-

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

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

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

$B = \{4,8,12\}$

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

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

L.H.S

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

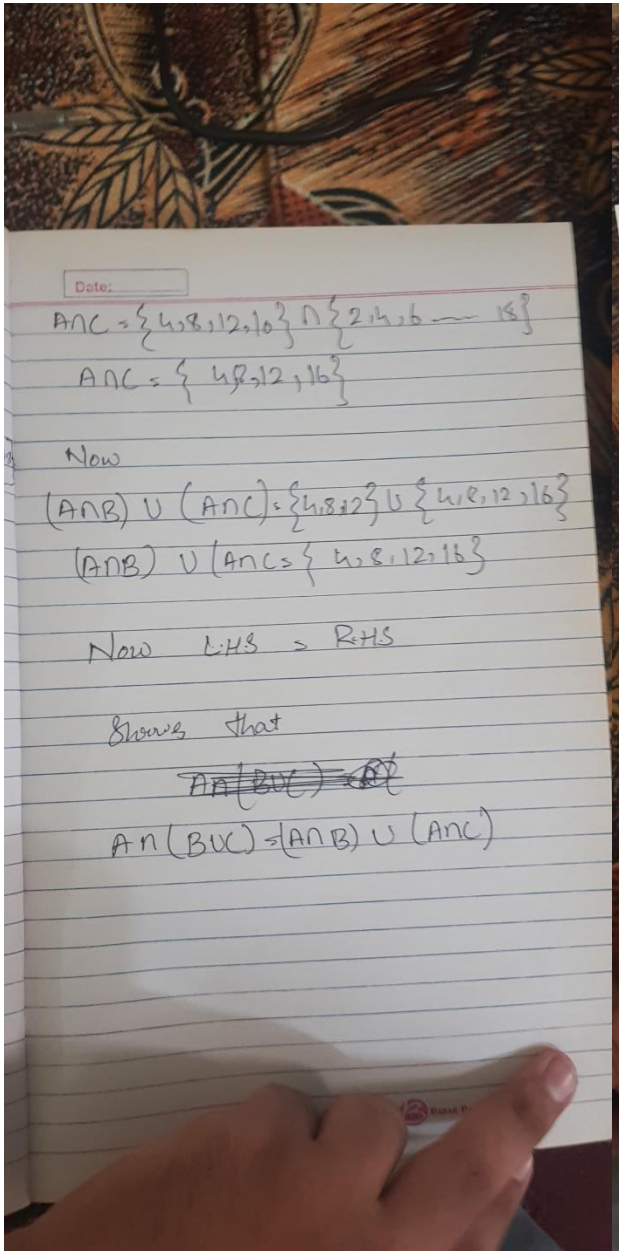
$(A \cup B)^c = \{2,4,6,8,10,12,14,16,18,20,22\}$

$(\{4,8,12,16\} \cup \{4,6,12,16\})$

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

R.H.S

$A^c \cap B^c$



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

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

Now

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

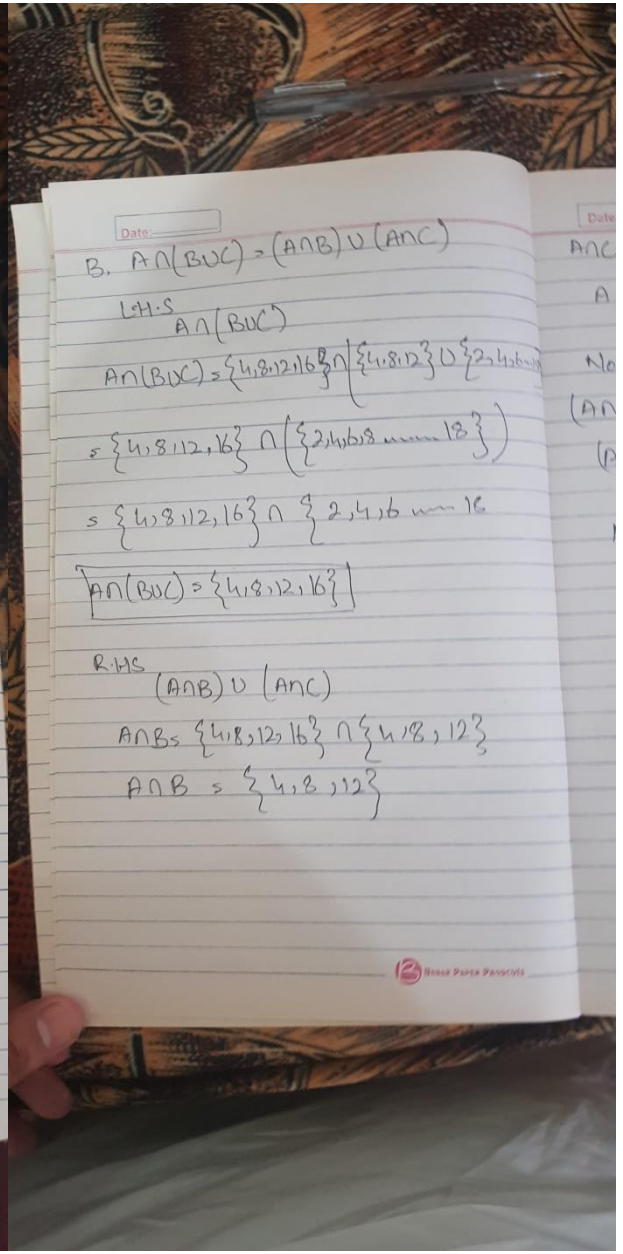
$(A \cap B) \cup (A \cap C) = \{4, 8, 12, 16\}$

Now L.H.S = R.H.S

Shows that

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

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



Date:

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

L.H.S

$A \cap (B \cup C)$

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

$= \{4, 8, 12, 16\} \cap (\{2, 4, 6, 8 \text{ ---- } 18\})$

$= \{4, 8, 12, 16\} \cap \{2, 4, 6 \text{ ---- } 16$

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

R.H.S

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

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

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

Date:

$= x^3 \times x^{9/4} \times \frac{x}{y^{16/3}}$

$= x^{-\frac{8}{2}} \times x^{9/4} \times \frac{x}{y^{16/3}}$

$= x^{-2} \times x^{9/4} \times \frac{1}{y^{16/3}}$

$= x^{-2+\frac{9}{4}} \times \frac{1}{y^{16/3}}$

$= x^{-\frac{4+9}{4}} \times \frac{1}{y^{16/3}}$

$= x^{1/4} \times \frac{1}{y^{16/3}}$

$= \sqrt[4]{x} \,/\, \sqrt[3]{y^{16}}$ Ans.

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Date:

Q 3 ,

Sol:-

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

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

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

$\frac{1}{x^3} \times \frac{x^{3/2}\left(x^{3/4}\right) y^{-2}}{x} \times \frac{x^2\, y^{-3}}{y^{1/3}}$

$x^{-3} \times x^{9/4} y^{-2} \times \frac{x y^{-3}}{y^{1/3}}$

$x^{-3} \times x^{9/4} \times \frac{x}{y^2 \times y^3 \times y^{1/3}}$

$x^{-3} \times x^{9/4} \times \frac{x}{y^{2+3+1/3}}$

$x^{-3} \times x^{9/4} \times \frac{x}{y^{\frac{6+9+1}{3}}}$

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