Subject : Basic Mathematics

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Q1. Transpose to make 𝒙 the subject:

1. 𝑦 = 3𝑥

Sol: y=3x

3x+y=0

xy= 3

X= 3y ans

1. 𝑦 = 1/𝑥

Sol: y=1/x

Xy=1

X=1y ans

c. 𝑦= 7𝑥 – 5

sol: y=7x-5

x=2y ans

D.𝑦 = 1/2 𝑥 – 7

Sol: y=1/2x -7

X=1/2-7y

X=2/6y ans

**Q2. Solve the followings**

2: a. ½ x 3/2 (x-4) = 6

-21x +12 = -6-3x

**Sol**~~:~~

* ~~2~~ x 1/~~2~~ x + 3/~~2~~ (x-4) ~~x2~~ =6x2

-21x +12 = -6 -3x

* 1x + 3x -12=12

=21x+3x=-6-12

* 4x = 12 +12

-18 = -18

* X = ~~24~~ 6/~~4~~ 1

X = -~~18~~ 1/-~~18~~ 1

* x= 6

x=1 ans

**b: 4x ½ (2x-4) = 18**

**-1-7m = -8m+7**

Sol:

* 2 x 4x +1/2 (2x-4) = 18x2

-1-7m = -8m+7

* 8x +1 (2x – 4)= 36

-7m + 8m =7+1

* 10x = 36+4

1m = 8

* 10x = 40

1m = 8

* X = 40/10

M = 8

* X = 4

M = 8 ans

**Q3:**

**Sol: (i) 2x + y =2**

**3x + 7y= 14**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 2 1  3 7 |  | X  y |  | 2  14 |

A xB

X = B -1 B

|  |
| --- |
| 2 1  3 7 |

A =(2x7)(3x1) = 14 + 3 = 17 not equal to 0

A -1 = 1/17

[A]

|  |
| --- |
| 7 - 1  -3 2 |

A -1= 1/17

|  |  |
| --- | --- |
| 7 - 1  -3 2 | 2  14 |

A -1= 1/17 [ (7x2)(-1x14)]

[(-3x2)(2x14 ]

A -1= 1/17

[14 -14]

[-6 28]

A -1= 1/17 =

|  |
| --- |
| 0  22 |

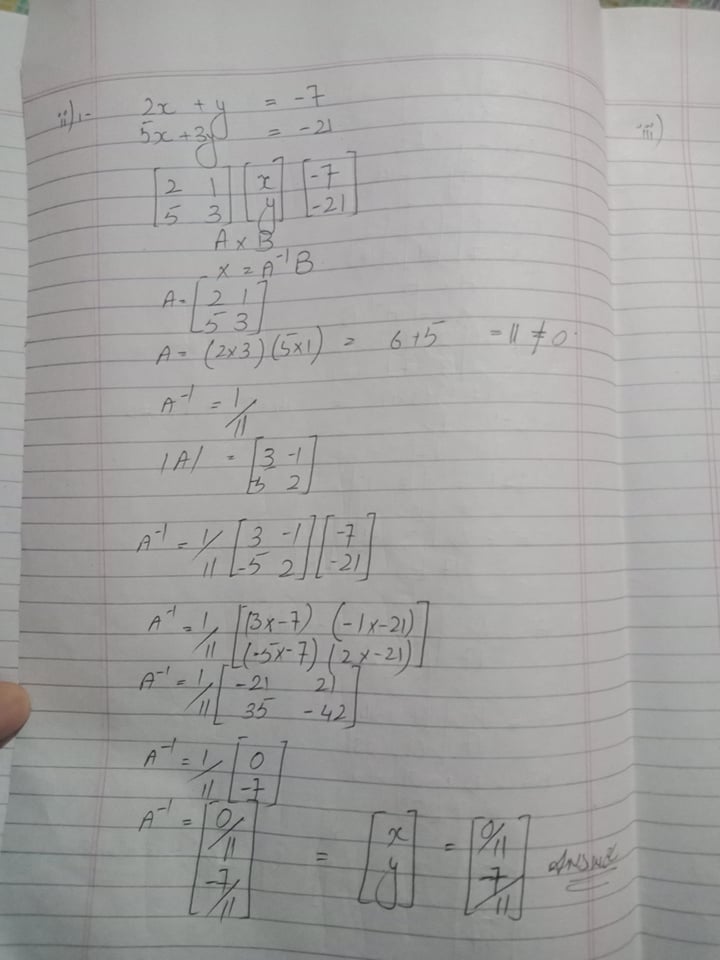
A -1 =

|  |  |
| --- | --- |
| 0/17  22/17 | X  y |

ans

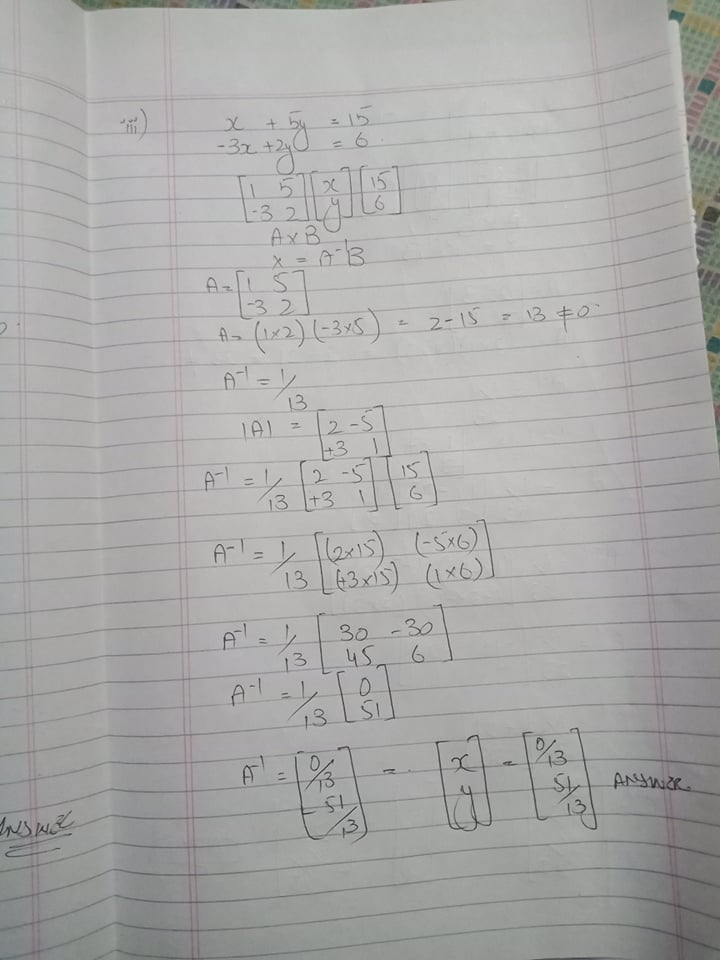
(ii)

**Sol:**



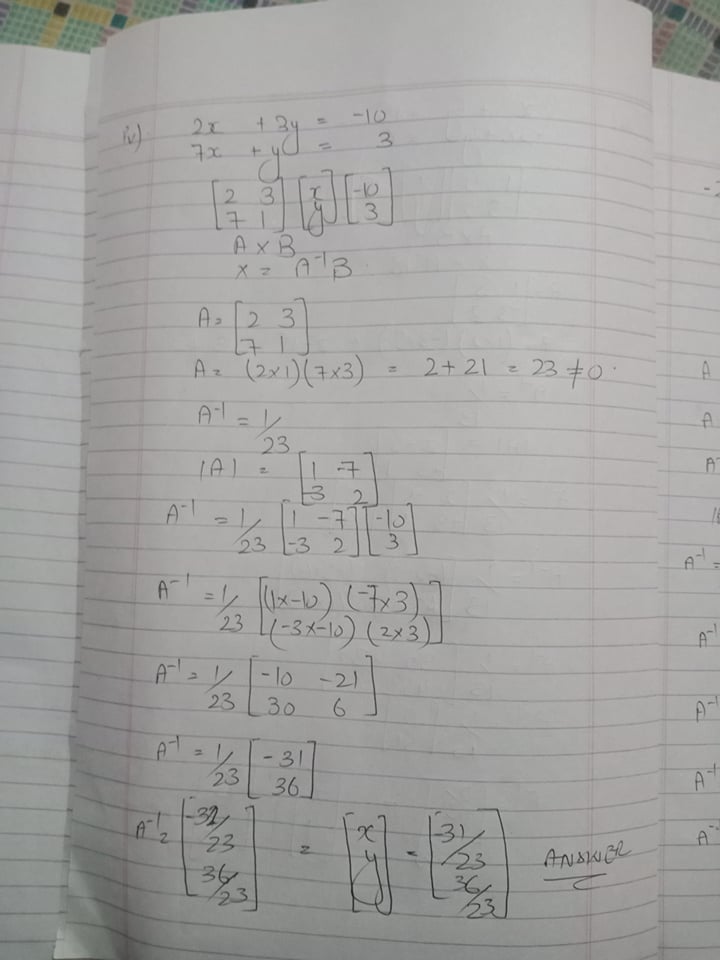
**(iii)**

**Sol:**



**(iv)**

**Sol:**



**Question # 4**

**If A = [ 3 1] then find [A]**

**[-2 3]**sol:

If A = [ 3 1] then find [A]

[-2 3]

A= = [ 3 1]

[-2 3]

A=(3x3)(-2x1)

9-2#0

A -1 = 1/7

[A] = [ 3 -1]

[+2 3] ans

**Question#5**

**Write each product as single matrix**

1)

|  |
| --- |
| 1 -1   1. 2   1 0 |

[3 1 -1]

[0 -1 2]

**Sol:**

|  |
| --- |
| 1 -1   1. 2   1 0 |

[3 1 -1]

[0 -1 2]

[(3x1)(1x0)(1x1)]

[(3x-1)(1x2)(-1x0)]

[3 0 -1]

[-0 -2 0] ans

|  |
| --- |
| 1  2  -2 |

**Ii)** [3 -2 2]

Sol:

|  |
| --- |
| 1  2  -2 |

[3 -2 2]

[(3x1)(-2x2)(2x-2)]

[3 -4 -4] ans

|  |  |
| --- | --- |
| 2 -2 -1  1 1 -2  1 0 -1 | 1 -2 5  -1 - 1 3  -1 -2 4 |

**(iii)**

Sol:

|  |  |
| --- | --- |
| 2 -2 -1  1 1 -2  1 0 -1 | 1 -2 5  -1 - 1 3  -1 -2 4 |

|  |
| --- |
| (2x-1) (-2x-1) (-1x-1)  (1x-2) (1x-1) (-2x-2)  (1x5) (0x3) (-1x4) |

|  |
| --- |
| -2 +2 +1  -2 -1 +4  5 0 -4 |

Ans

(iv)

|  |
| --- |
| -1 -2 5  -1 -1 3  -1 -2 4 |

|  |
| --- |
| 2 -2 - 1  1 1 -2  1 0 -1 |

Sol:

|  |
| --- |
| -1 -2 5  -1 -1 3  -1 -2 4 |

|  |
| --- |
| 2 -2 - 1  1 1 -2  1 0 -1 |

=

|  |
| --- |
| (-1x2) (-2x1) ( 5x1)  -1x-2) (-1x1) (3x0)  (-1x1) (-2x-2) (4x-1) |

|  |
| --- |
| -2 -2 5  +2 -1 0  +1 +4 -4 |

**Question #6**

If A [1 4] B=[-3 2] c=[1 0]

[2 1] [4 0[ [0 2]

Sol:

A = [1 4] B=[-3 2] c=[1 0]

[2 1] [4 0[ [0 2]

Find A 2 +BC

A= [1 4] x A= [1 4]

[2 1] [2 1]

|  |
| --- |
| (1x1) 4x2)  (2x4) (1x1) |

A 2=

|  |
| --- |
| 1 8  8 1 |

B=[-3 2] x c= [1 0]

[4 0] [0 2]

|  |
| --- |
| (-3x1) (2x0)  (4x0) (0x2) |

BC

|  |
| --- |
| -3 0  0 0 |

BC

|  |
| --- |
| 1 8  8 1 |

|  |
| --- |
| -3 0  0 0 |

A2 + BC =

A2 + BC

**ans**

question 7

