NAME: SADIKU DAVID JESUFERANMI

MATRIC NO: 18/SCI01/082

**Solution**

1. Linear transformation is a mapping T from V to W if T(u+v)= T(u) + T(v) for every pair of vectors u and from V and T(αV)=αT(v) for every vector v and scalar α from R.

**Example**

1. A= 4 3 -1

2 0 5

1 -1 6

Given vector X to be (-1, 2, 5)

T(x)=A(x) = 4 3 -1 -1

2 0 5 2

1 -1 6 5

= -1 4 +2 3 +5 -1

2 0 5

1 -1 6

= -4 6 -5

-2 + 0 + 25

-1 -2 30

T(x)= -**3 hence, the transformation of -1**

**23 2**

**27 5**

1. B= 3 7 1

0 2 4

4 5 -3

Given X to be (3,5,1)

T(x)= B(x) = 3 7 1 3

0 2 4 5

4 5 -3 1

= 3 3 +5 7 +1 1

0 2 4

4 5 -3

= 9 35 1

0 + 10 + 4

12 25 -3

= **45 3**

**14 Hence, the transformation of 5**

**34 1**

1. C= 2 -3 5

-1 4 1

6 8 2

Given X to be (4,5,-1)

T(x)= C(x)= 2 -3 5 4

-1 4 1 5

6 8 2 -1

= 4 2 5 -3 -1 5

-1 + 4 + 1

6 8 2

= 8 -15 -5

-4 + 20 + -1

24 45 -2

**= -12**

**15 Hence, transformation of 4**

**62 5**

**-1**

1. D= 4 5 -3

2 5 1

3 2 -1

Given X to be (9,-2,0)

T(x)=D(x)= 4 5 -3 9

2 5 1 -2

3 2 -1 0

= 9 4 -2 5 0 -3

2 + 5 + 1

3 2 -1

= 36 10 0

18 + -10 + 0

27 -4 0

**= 26**

**8 Hence, the transformation of 9**

**23 -2**

**0**

1. E= 1 -3 6

4 0 2

8 5 1

Given X to be (-1, 2,3)

1. T(x)=E(x) =1 -3 6 -1

4 0 2 2

8 5 13

= -1 1 2 - 3 3 6

4 + 0 + 2

8 5 1

= -1 -6 18

-4 + 0 + 6

-8 10 3

**= 11**

**2 Hence, the transformation of -1**

**5 2**

**3**