**MATHEMATICS ACTIVITIES FOR S6**

1.Solve : a)

b) Use matrix inverse method to solve the following systems

2.Solve the simultaneous equations :

Using values of and ,Find the modulus and argument of

3.Differentiate , n is any constant.

4.Find the first derivative of

**5.**Event A and B are such that , and State ,giving a reason in each case whether events A and B are **: a)** independent **b)** mutually exclusive.

**6**.Let the binary operation \*be defined on Z (ring of integers) by

a) Calculate 2\*(-1), (-1) \*9, and 6\*1

b) Determine whether \* is commutative, associative or neither.

c)Determine whether or not there exist an identity for \* /1Mrk

**7.**A and B are points whose position vectors are and respectively, Determine the position vector of the point p that divided AB in the ratio 4:1

**8**.Given that and .show that

*9. The line x+2y intersects the curve xy+18=0 at the points A and B. Find the coordinates of A and* B. 10.Find the angle between planes and 11.a) Let

i) Express in partial fractions.

12.Obtain the regression equation of x on y and y on x taking the origin as 2 and 200 for x and y respectively:/15Marks

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| X | 1 | 2 | 3 | 4 | 5 |
| Y | 166 | 184 | 142 | 180 | 338 |

13.Let f be be a linear transformation so that and find:

i)

ii)

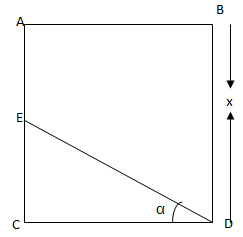
ii)

14.a) Determine the domain of the function +

b) Find the period of the function )

15. Solve in the following equation :()4-()2=159600 16. a) Find the Cartesian equation of the plane α which passes through the plane p= (2, -3,4) and perpendicular to the line defined by the points a= (1,5,7) and b= (-2,2,3) b) for what value of λ are the vectors coplanar?

17.Consider the following figure

ABCD is a square, CE=AE,=X.Find

18.a) show that o≤p≤n

b) Solve the equation in the set of positive integers.

19.Evaluate the following limits:

a) -

b)

20. Consider the vectors of

a) If ?

b) For what value of real number k, the vector (1,k,5) is a linear combination of s

21. Consider the following linear mapping defined on by .Calculate its matrix relative to the basis (

22. Use matrix inverse method to solve this system

23.a) Find the equation of sphere which passes through the points (1,2,3), (0,-2,4), (4,-4,2) and (3,1,4)

b) Find the center and radius of the sphere:

24. The coefficient of in the expansion of (is equal to the coefficient of in the expansion of (Find the value of .

25. the perimeter of rectangle is36cm.

a) What are the dimensions (length and width) of that rectangle?

b) What is its greatest possible area?

26. In a physics experiment, a bottle of milk was brought from a cool room into a warm room. Its temperature was recorded at minutes after it was brought in ,for 11 different values of .the results are summarized as:

(i) Calculate the equation of the line of regression of on in the form

(ii) Explain the practical significance of the value of.

(iii) Use your equation to estimate the values of

**GOOD-LUCK**