**%EJERCICIO 1:**

**A=[1 2 3;4 5 6;7 8 9]**

**A =**

**1 2 3**

**4 5 6**

**7 8 9**

**B=2.\*A**

**B =**

**2 4 6**

**8 10 12**

**14 16 18**

**C=A.^2**

**C =**

**1 4 9**

**16 25 36**

**49 64 81**

**D=1./A**

**D =**

**1.0000 0.5000 0.3333**

**0.2500 0.2000 0.1667**

**0.1429 0.1250 0.1111**

**%EJERCICIO 2:**

**B=[1 2 3 4;0 3 -4 5; 4 7 8 9;-3 -5 0.7 5]**

**B =**

**1.0000 2.0000 3.0000 4.0000**

**0 3.0000 -4.0000 5.0000**

**4.0000 7.0000 8.0000 9.0000**

**-3.0000 -5.0000 0.7000 5.0000**

**sortrows(A)**

**ans =**

**1 2 3**

**4 5 6**

**7 8 9**

**sortrows(B)**

**ans =**

**-3.0000 -5.0000 0.7000 5.0000**

**0 3.0000 -4.0000 5.0000**

**1.0000 2.0000 3.0000 4.0000**

**4.0000 7.0000 8.0000 9.0000**

**%sortrows reacomoda las filas en orden ascendente segun el valor de la primera columna.**

**sort(A)**

**ans =**

**1 2 3**

**4 5 6**

**7 8 9**

**sort(B)**

**ans =**

**-3.0000 -5.0000 -4.0000 4.0000**

**0 2.0000 0.7000 5.0000**

**1.0000 3.0000 3.0000 5.0000**

**4.0000 7.0000 8.0000 9.0000**

**%sort acomoda tosas y cada una de las columnas de menor a mayor, dejando arriba aquellos valores menores.**

**sort(B(:,3))**

**ans =**

**-4.0000**

**0.7000**

**3.0000**

**8.0000**

**%EJERCICIO 3:**

**V=[1 3 0.1 8 5 12 13 6 3.9 -9 1.3 -5.4 0.2 13.8]**

**V =**

**Columns 1 through 4**

**1.0000 3.0000 0.1000 8.0000**

**Columns 5 through 8**

**5.0000 12.0000 13.0000 6.0000**

**Columns 9 through 12**

**3.9000 -9.0000 1.3000 -5.4000**

**Columns 13 through 14**

**0.2000 13.8000**

**desv(V)**

**ans =**

**19.5532**

**clear all**

**%EJERCICIO 4:**

**A=[2 3 -1]; B=[-1 1 2];**

**norma(A)**

**ans =**

**3.7417**

**norma(B)**

**ans =**

**2.4495**

**clear all**

**%EJECICIO 5:**

**a=[2 3 -1];b=[-1 1 2];**

**angvec(a,b)**

**ans =**

**1.6801**

**clear all**

**%EJECICIO 6:**

**r=32;R=50;V=125000;**

**h=3\*V/(pi\*(r+R+r\*R))**

**h =**

**70.9668**

**Al=pi\*(r+R)\*sqrt((r+R)^2+h^2)**

**Al =**

**2.7937e+004**

**At=Al+pi\*(R^2+r^2)**

**At =**

**3.9008e+004**

**clear all**

**%EJERCICIO 7:**

**A=[8 1 6;3 5 7;4 9 2]**

**A =**

**8 1 6**

**3 5 7**

**4 9 2**

**b=trace(A)**

**b =**

**15**

**row3=sum(A(3,:))**

**row3 =**

**15**

**%trace obtiene la traza de la matriz**

**%sum hace suma de elementos (fila o columna)...**

**%en este caso sumo la tercer fila.**

**col23=sum(A(2:3,:))**

**col23 =**

**7 14 9**

**%suma los elementos de la segunda y tercera fila por columnas**

**[L,U]=lu(A)**

**L =**

**1.0000 0 0**

**0.3750 0.5441 1.0000**

**0.5000 1.0000 0**

**U =**

**8.0000 1.0000 6.0000**

**0 8.5000 -1.0000**

**0 0 5.2941**

**L\*U**

**ans =**

**8 1 6**

**3 5 7**

**4 9 2**

**clear all**

**%EJERCICIO 8:**

**V1=[2 1 4 5 3];V2=[3 2 1];**

**A=[1:3;4:6;7:9;10:12;13:15];**

**B=A(V1,:)**

**B =**

**4 5 6**

**1 2 3**

**10 11 12**

**13 14 15**

**7 8 9**

**C=A(:,V2)**

**C =**

**3 2 1**

**6 5 4**

**9 8 7**

**12 11 10**

**15 14 13**

**clear all**

**%EJERCICIO 9:**

**A=[2 7 9 7;3 1 5 6;8 1 2 5];**

**reshape(A,2,6)**

**ans =**

**2 8 1 9 2 6**

**3 7 1 5 7 5**

**%reordena en una matriz de 2x6 siguiendo el orden de numeracion**

**A(:)**

**ans =**

**2**

**3**

**8**

**7**

**1**

**1**

**9**

**5**

**2**

**7**

**6**

**5**

**flipud(A)**

**ans =**

**8 1 2 5**

**3 1 5 6**

**2 7 9 7**

**A**

**A =**

**2 7 9 7**

**3 1 5 6**

**8 1 2 5**

**fliplr(A)**

**ans =**

**7 9 7 2**

**6 5 1 3**

**5 2 1 8**

**sum(A')**

**ans =**

**25 15 16**

**[A;A(1:2,:)]**

**ans =**

**2 7 9 7**

**3 1 5 6**

**8 1 2 5**

**2 7 9 7**

**3 1 5 6**

**[[A;sum(A)]]**

**ans =**

**2 7 9 7**

**3 1 5 6**

**8 1 2 5**

**13 9 16 18**

**[sum(A,2);sum(A(:))]**

**ans =**

**25**

**15**

**16**

**56**

**clear all**

**%EJERCICIO 10:**

**heron(5,7,9)**

**ans =**

**17.4123**

**clear all**

**%EJERCICIO 11:**

**velflu(37.5,42.5)**

**ans =**

**9.9045**

**clear all**

**%EJERCICIO 12:**

**A=[170.4105 37.9473 -113.842 -37.9473]**

**A =**

**170.4105 37.9473 -113.8420 -37.9473**

**A=[170.4105 37.9473 -113.842 -37.9473**

**37.9473 69.2176 -37.9473 -12.6491**

**-113.842 -37.9473 120.9131 45.0184**

**-37.9473 -12.6491 45.0184 19.7202]**

**A =**

**170.4105 37.9473 -113.8420 -37.9473**

**37.9473 69.2176 -37.9473 -12.6491**

**-113.8420 -37.9473 120.9131 45.0184**

**-37.9473 -12.6491 45.0184 19.7202**

**P=[0;0;0;-1000-(2+0+1+2+6+4+0+1+3+1)]**

**P =**

**0**

**0**

**0**

**-1020**

**B=[pi -exp(1) sqrt(2) -sqrt(3)**

**pi^2 exp(1) -exp(2) 3/7**

**sqrt(5) -sqrt(6) 1 -sqrt(2)**

**pi^3 exp(2) -sqrt(7) 1/9]**

**B =**

**3.1416 -2.7183 1.4142 -1.7321**

**9.8696 2.7183 -7.3891 0.4286**

**2.2361 -2.4495 1.0000 -1.4142**

**31.0063 7.3891 -2.6458 0.1111**

**Q=[sqrt(2+0+1+2+6+4+0+1+3+1);0;pi;sqrt(2)]**

**Q =**

**4.4721**

**0**

**3.1416**

**1.4142**

**C=[1./(7:-1:4);1./(6:-1:3);1./(5:-1:2);1./(4:-1:1)]**

**C =**

**0.1429 0.1667 0.2000 0.2500**

**0.1667 0.2000 0.2500 0.3333**

**0.2000 0.2500 0.3333 0.5000**

**0.2500 0.3333 0.5000 1.0000**

**R=[12/pi^2-96/pi^4;8/pi^2-16/pi^3;4/pi^2;2\*(2+0+1+2+6+4+0+1+3+1)/pi]**

**R =**

**0.2303**

**0.2945**

**0.4053**

**12.7324**

**u=A\P**

**u =**

**27.0467**

**9.0155**

**173.4234**

**-389.7961**

**x=B\Q**

**x =**

**-0.8001**

**3.5809**

**-0.3267**

**-9.9197**

**a=C\R**

**a =**

**1.0e+003 \***

**-1.6938**

**2.9028**

**-1.4499**

**0.1935**

**%EJERCICIO 13:**

**[L,U]=lu(A)**

**L =**

**1.0000 0 0 0**

**0.2227 1.0000 0 0**

**-0.6680 -0.2073 1.0000 0**

**-0.2227 -0.0691 0.4449 1.0000**

**U =**

**170.4105 37.9473 -113.8420 -37.9473**

**0 60.7674 -12.5968 -4.1989**

**0 0 42.2502 18.7975**

**0 0 0 2.6168**

**[L2,U2]=lu(B)**

**L2 =**

**0.1013 1.0000 0 0**

**0.3183 -0.1056 1.0000 0**

**0.0721 0.8602 0.0402 1.0000**

**1.0000 0 0 0**

**U2 =**

**31.0063 7.3891 -2.6458 0.1111**

**0 -3.4669 1.6823 -1.7433**

**0 0 -6.3692 0.2090**

**0 0 0 0.0690**

**[L3,U3]=lu(C)**

**L3 =**

**0.5714 1.0000 0 0**

**0.6667 0.9333 0.5000 1.0000**

**0.8000 0.7000 1.0000 0**

**1.0000 0 0 0**

**U3 =**

**0.2500 0.3333 0.5000 1.0000**

**0 -0.0238 -0.0857 -0.3214**

**0 0 -0.0067 -0.0750**

**0 0 0 0.0042**

**clear all**

**%EJERCICIO 14:**

**x=pi/6;A=[cos(x) -sin(x);sin(x) cos(x)]**

**A =**

**0.8660 -0.5000**

**0.5000 0.8660**

**B=A'\*A**

**B =**

**1 0**

**0 1**

**clear all**

**%EJERCICIO 15:**

**x=1:10;z=[3 1 5 6 8 2 9 4 7 0];**

**(x>3)&(x<8)**

**ans =**

**Columns 1 through 7**

**0 0 0 1 1 1 1**

**Columns 8 through 10**

**0 0 0**

**x.\*(x>5)**

**ans =**

**Columns 1 through 7**

**0 0 0 0 0 6 7**

**Columns 8 through 10**

**8 9 10**

**y.\*(x<=4)**

**{??? Undefined function or variable 'y'.**

**}**

**clear z;y=[3 1 5 6 8 2 9 4 7 0];**

**y.\*(x<=4)**

**ans =**

**Columns 1 through 7**

**3 1 5 6 0 0 0**

**Columns 8 through 10**

**0 0 0**

**x.\*((x<2)|(x>=8))**

**ans =**

**Columns 1 through 7**

**1 0 0 0 0 0 0**

**Columns 8 through 10**

**8 9 10**

**y.\*((x<2)|(x>=8))**

**ans =**

**Columns 1 through 7**

**3 0 0 0 0 0 0**

**Columns 8 through 10**

**4 7 0**

**x.\*(y<0)**

**ans =**

**Columns 1 through 7**

**0 0 0 0 0 0 0**

**Columns 8 through 10**

**0 0 0**

**clear all**

**%EJERCICIO 16:**

**R=(1/0.8+1/0.2)^(-1)+0.5**

**R =**

**0.6600**

**clear all**

**%EJERCICIO 17:**

**L=1/(4\*pi^2\*(17e3)^2\*3.5e6)**

**L =**

**2.5042e-017**

**clear all**

**diary off**

**FUNCION: angvec(v,w)**

function [ ang ] = angvec(v,w)

%Calcula el ángulo entre dos vectores

[a b]=size(v);

[c d]=size(w);

nv=sqrt(sum((v.^2)'));

nw=sqrt(sum((w.^2)'));

ang=acos(sum((v.\*w)')/(nv\*nw));

%angulo en radianes

end

**FUNCION: desv(v)**

function [ G ] = desv( v )

%Calcula la desviacion estándar

[a b]=size(v);

prom=sum(v')/b;

G=sum((sqrt(((v-prom).^2)./(b-1)))');

end

**FUNCION: heron(a,b,c)**

function [ A ] = heron( a,b,c )

%Calcula el área de un triángulo a partir de sus %lados

S=(a+b+c)./2;

A=sqrt(S.\*(S-a).\*(S-b).\*(S-c));

end

**FUNCION: norma(v)**

function [ abs ] = norma( v )

%Calcula la norma de un vector

abs=sqrt(sum((v.^2)'));

end

**FUNCION: velflu(h1,h2)**

function [ v ] = velflu( h1,h2 )

%Calcula la velodidad de un fluido dadas las %diferentes alturas y gravedad

v=sqrt(2\*9.81\*(h2-h1));

end