

Score:

Name:

Solutions

Section (circle one): 1 2 3 4 5 6

Team (circle one): a b c d e f

SM233 - Test #1

1. x=4;  
if x>3  
y=1;  
else  
y=2;  
end

2. x=4;  
if and(x>0, x<=2) NO  
y=1;  
elseif or(x<4, x>0) yes  
y=2;  
else  
y=3;  
end

y= 1

y= 2

3. x=(1:4)  
M=ones(1,4)\*x;

$[1 \ 1 \ 1 \ 1] \begin{bmatrix} 1 \\ 2 \\ 3 \\ 4 \end{bmatrix} = (1+2+3+4)$

4. x=(1:4)  
M=ones(4,1)\*x

$\begin{bmatrix} 1 \\ 1 \\ 1 \\ 1 \end{bmatrix} [1 \ 2 \ 3 \ 4]$

M= 10

M=

$\begin{bmatrix} 1 & 2 & 3 & 4 \\ 1 & 2 & 3 & 4 \\ 1 & 2 & 3 & 4 \\ 1 & 2 & 3 & 4 \end{bmatrix}$

5. x=0;  
for n=1:4;  
if x<4;  
x=x+2;  
else  
x=x-1;  
end  
end

n 1 2 3 4  
x 2 4 3 5

Throw out

x=[1:10];  
y=0;  
while y<10,  
y=y+x^2;  
end

x 1 2 3 4 5  
y 1 5 14

x= 5

y= 14

7. A=[1,2;3,4]  
B=[0,3;2,-3]  
M=A\*B

$\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix} \begin{bmatrix} 0 & 3 \\ 2 & -3 \end{bmatrix}$

8. y=0;  
for n=2:4  
y=y+n^2;  
end

n= 2 3 4  
y= 4 13 29

M=  $\begin{bmatrix} 4 & -3 \\ 8 & -3 \end{bmatrix}$

y= 29

9. A=[1,2;3,4]  
 B=[0,3;2,-3]  
 M=A.\*B

$$\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix} \begin{bmatrix} 0 & 3 \\ 2 & -3 \end{bmatrix}$$

10. M=[1,2,3;4,5,6;7,8,9]  
 Ms=M(2:2,2:3).^2;

$$\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$$

$$M = \begin{bmatrix} 0 & 6 \\ 6 & -12 \end{bmatrix}$$

$$Ms = \begin{bmatrix} 25 & 36 \end{bmatrix}$$

11. M=eye(3)+ones(3)

$$\begin{bmatrix} 1 & 1 \\ 1 & 1 \\ 1 & 1 \end{bmatrix} + \begin{bmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{bmatrix}$$

12. x=[1:0.1:2]  
 y=x.^4;  
 plot(x,y);  
 a=axis

$$1 \leq x \leq 2$$

$$1 \leq y \leq 16$$

$$M = \begin{bmatrix} 2 & 1 & 1 \\ 1 & 2 & 1 \\ 1 & 1 & 2 \end{bmatrix}$$

$$a = [1, 2, 1, 16]$$

13. x=[1,2,3]

$$\begin{bmatrix} 1 & 2 & 3 \end{bmatrix} \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix} = 1+4+9$$

14. f=inline('x.^2+2.\*x+3');  
 x=[1,2];  
 y=f(x);

$$\begin{bmatrix} 1+2+3, 4+4+3 \end{bmatrix} = \begin{bmatrix} 6, 11 \end{bmatrix}$$

$$x*x' = 14$$

$$y = \begin{bmatrix} 6, 11 \end{bmatrix}$$

15. x=[1;2;3]

$$\begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix} \begin{bmatrix} 1 & 2 & 3 \end{bmatrix}$$

16. f=inline('x.^2+y.^2');  
 x=[1,2]; y=[3,4];  
 z=f(x,y)

$$z = \begin{bmatrix} 1^2+3^2, 2^2+4^2 \end{bmatrix}$$

$$x*x' = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 4 & 6 \\ 3 & 6 & 9 \end{bmatrix}$$

$$z = \begin{bmatrix} 10, 20 \end{bmatrix}$$

17. x=floor(rand(1,4)); [0,0,0,0]  
 y=ceil(rand(1,4)); [1,1,1,1]  
 z=y>x; → [1,1,1,1]

18. x=[1:10];  
 y=x<=4;

$$z = \begin{bmatrix} 1 & 1 & 1 & 1 \end{bmatrix}$$

$$y = \begin{bmatrix} 1 & 1 & 1 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

19. n=2+5>11-6<3^2  
 if n=1,  
 coin='heads';  
 else  
 coin='tails';  
 end

$$7 > 5 < 9$$

$$1 < 9$$

$$1$$

20. x=[1:10];  
 y=find(floor(x/2)~=x/2)

$$\text{coin} = \text{heads}$$

$$y = \begin{bmatrix} 1 & 3 & 5 & 7 & 9 \end{bmatrix}$$