

$$\begin{bmatrix} 1.0 & 2.0 & 4.0 \\ -2.1 & 3.2 & 6.1 \\ 3.2 & 4.2 & 5.2 \end{bmatrix}$$

1. Write the Matlab input for the matrix

2. What is the output of the last statement?

```
for i =1:1:3
    a(i,i)=0;
end
for i=1:1:3
    a(i,i)=a(i,i)+i*2;
end
a(3,3)
```

3. What is the output of the last statement?

```
for i =1:1:3
    a(i,i)=0;
end
for i=1:1:3
    a(i,i)=2*a(i,i)+i;
end
a(3,3)
```

4. Give an example of a symmetric matrix of size 4x4 with elements that are all non-zero and are as different from each other as possible.

5. Give an example of a diagonally dominant matrix of size 4×4 with elements that are all non-zero.

6. Give an example of a 4×4 diagonal matrix with as many nonzero elements as possible
