


```
p = [[x1];
      [x2];
      [x3];
      [x4];
      [x5]];
```

```
%Uncomment to get 2
```

```
%goal = [[1, 1, 1, 1, 1, 1, 1, 1, -1, -1], [1, 1, 1, 1, 1, 1, 1, 1, -1, -1], [-1, -1, ↙
-1, -1, -1, 1, 1, 1, -1, -1], [-1, -1, -1, -1, -1, 1, 1, 1, -1, -1], [-1, -1, -1, -1, ↙
-1, 1, 1, 1, -1, -1], [-1, -1, -1, -1, -1, 1, 1, 1, -1, -1], [-1, -1, -1, -1, -1, 1, 1, ↙
1, -1, -1], [1, 1, 1, 1, 1, 1, 1, 1, -1, -1], [1, 1, 1, 1, 1, 1, 1, 1, -1, -1], [1, 1, ↙
1, -1, -1, -1, -1, -1, -1, -1], [1, 1, 1, -1, -1, -1, -1, -1, -1, -1], [1, 1, 1, -1, ↙
-1, -1, -1, -1, -1, -1], [1, 1, 1, -1, -1, -1, -1, -1, -1, -1], [1, 1, 1, -1, -1, -1, ↙
-1, -1, -1, -1], [-1, -1, -1, -1, -1, -1, -1, -1, 1, 1], [-1, -1, -1, -1, -1, -1, -1, ↙
-1, 1, 1]];
```

```
%Uncomment to get 4
```

```
%goal = [[1, -1, -1, 1, 1, 1, 1, -1, -1, 1], [1, -1, -1, 1, 1, 1, 1, -1, -1, 1], [-1, ↙
1, 1, -1, -1, -1, -1, 1, 1, -1], [-1, 1, 1, -1, -1, -1, -1, 1, 1, -1], [-1, 1, 1, -1, ↙
-1, -1, -1, 1, 1, -1], [-1, 1, 1, -1, -1, -1, -1, 1, 1, -1], [-1, 1, 1, -1, -1, -1, -1, ↙
1, 1, -1], [-1, 1, 1, 1, 1, 1, 1, 1, 1, -1], [-1, 1, 1, 1, 1, 1, 1, 1, 1, -1], [-1, -1, ↙
-1, -1, -1, -1, -1, 1, 1, -1], [-1, -1, -1, -1, -1, -1, -1, 1, 1, -1], [-1, -1, -1, -1, ↙
-1, -1, -1, 1, 1, -1], [-1, -1, -1, -1, -1, -1, -1, 1, 1, -1], [-1, -1, -1, -1, -1, -1, ↙
-1, 1, 1, -1], [-1, -1, -1, -1, -1, -1, -1, 1, 1, -1], [-1, -1, -1, -1, -1, -1, -1, 1, ↙
1, -1]]
```

```
N = 160;
```

```
rows=size(p);
```

```
rows = rows(1);
```

```
trials = 10^2;
```

```
W = zeros(N,N);
```

```
for trial = 1:trials
```

```
    for i = 1:rows
```

```
        W = W + ((p(i,:)') * p(i,:))/N;
```

```
    end
```

```
    for i = 1:N
```

```
        W(i,i) = 0;
```

```
    end
```

```
W = W*goal';
```

```
for i = 1:N
```

```
    if goal(i) ~= sgn2(W(i))
```

```
        W(i) = sgn2(W(i));
```

```
    end
```

```
end
```

```
end
```

```
rr = flip(-reshape(-sgn2(W),[10,16]))';  
bb = flip(reshape(goal,[10,16]))';  
pcolor(rr)  
writematrix(flip(rr))
```