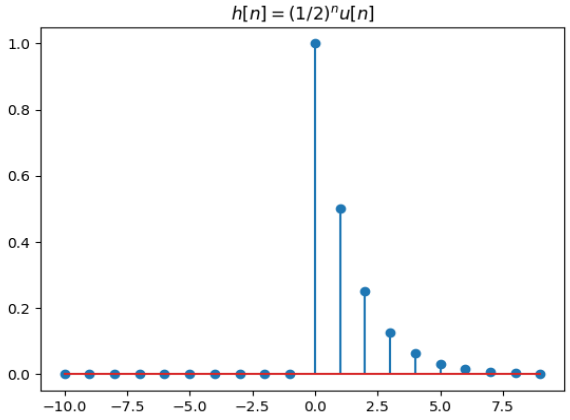
ELM367 Ödev1 BİL – Ömer Konan 171024085

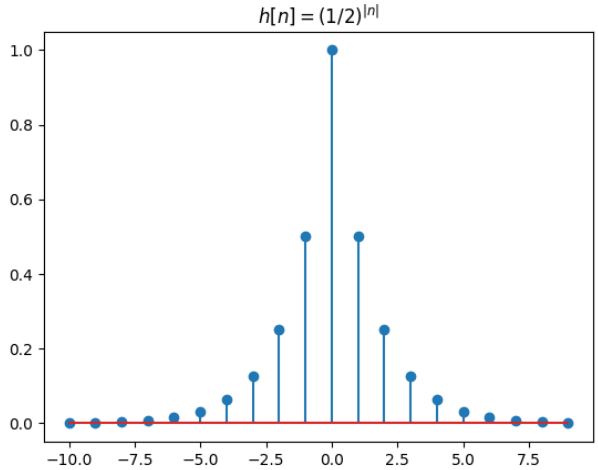
Soru 6)

Soru 6

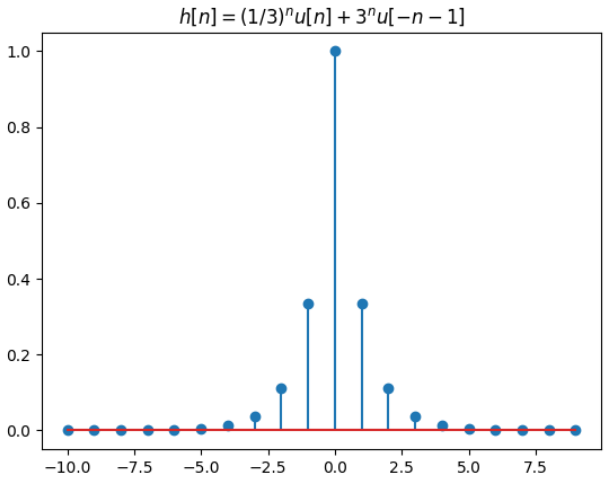
In [84]:
```
import matplotlib.pyplot as plt
import numpy as np
%matplotlib notebook
n_ = np.arange(-10,10,1)
h_a = np.zeros(len(n_))

# Soru 6) 18-a
for n in range(len(n_)):
    h_a[n] = (0.5 ** n_[n]) if (n_[n]>=0) else 0

plt.stem(n_, h_a,  use_line_collection=True)
plt.title("$ h[n] = (1/2)^n u[n]$")
plt.show()
```



In [91]:
```
# Soru 6) 18-c

h_c = np.zeros(len(n_))

for n in range(len(n_)):
    h_c[n] = (0.5 ** abs(n_[n]))
plt.figure()
plt.stem(n_, h_c,  use_line_collection=True)
plt.title("$ h[n] = (1/2)^{|n|}$")
plt.show()
```



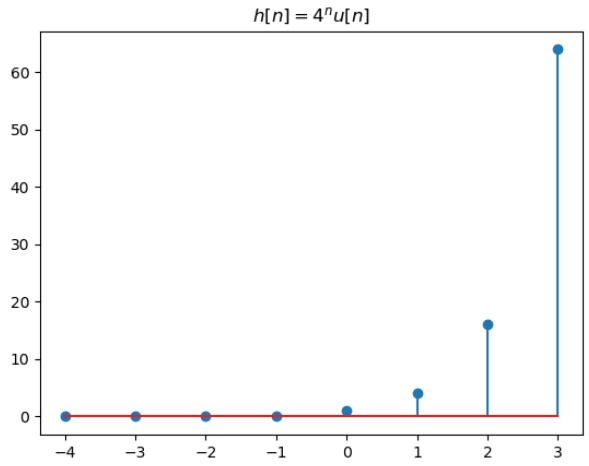
In [92]:
```
# Soru 6) 18-e

h_e = np.zeros(len(n_))
h1 = np.zeros(len(n_))
h2 = np.zeros(len(n_))

for n in range(len(n_)):

    h1[n] = ((1/3)**n_[n]) if(n_[n] >= 0) else 0
    h2[n] = (3.**n_[n]) if(-(n_[n])-1>=0) else 0
    h_e[n] = h1[n] + h2[n]

plt.figure()
plt.stem(n_, h_e,  use_line_collection=True)
plt.title("$ h[n] = (1/3)^n u[n] + 3^n u[-n-1]$")
plt.show()
```



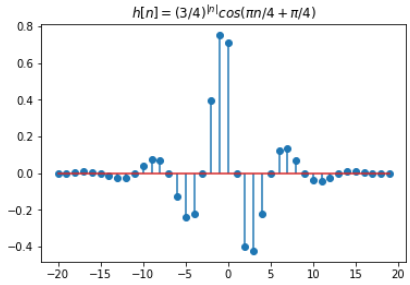
Soru 7)

Soru 7

In [4]:
```
import matplotlib.pyplot as plt
import numpy as np
%matplotlib notebook


n_a = np.arange(-4,4,1)
h_a = np.zeros(len(n_a))

# Soru 7) 19-a
for n in range(len(n_a)):
    h_a[n] = (4 ** n_a[n]) if (n_a[n]>=0) else 0
    #print("n:",n_[n])
    #print("h",h_a[n])

plt.stem(n_a, h_a,  use_line_collection=True)
plt.title("$ h[n] = 4^n u[n]$")
plt.show()
```



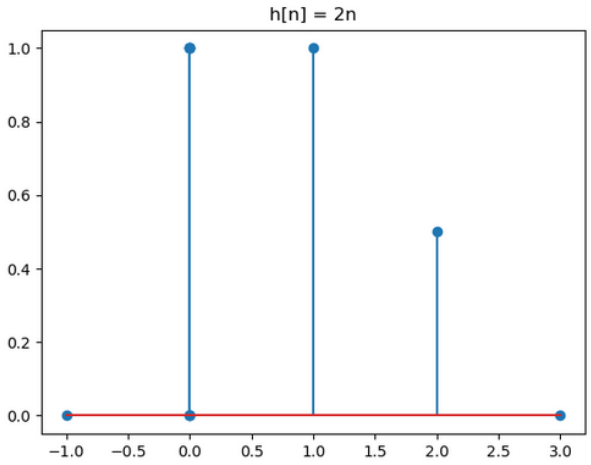
In [2]:
```
pi = np.pi
n_e = np.arange(-20,20,1)
h_e = np.zeros(len(n_e))

# Soru 7) 19-e
for n in range(len(n_e)):
    h_e[n] = ((3/4) ** abs(n_e[n]))*np.cos(n_e[n]*pi/4+pi/4)
    #print("n:",n_[n])
    #print("h",h_a[n])

plt.figure()
plt.stem(n_e, h_e,  use_line_collection=True)
plt.title("$ h[n] = (3/4)^{|n|} cos(\\pi n/4 + \\pi/4)$")
plt.show()
```



Soru 8)

Soru 8

In [3]:
```
import matplotlib.pyplot as plt
import numpy as np
%matplotlib notebook
# Soru 8) 21-c
n_c = np.arange(-3,8,1)
h_c = np.array([0,0,1,1,1,1,1,0.5,0,0,0])

n_c = n_c/2

for k  in range(len(n_c)):

    if (n_c[k]%1 != 0):
        n_c[k] = 0

plt.stem(n_c, h_c, use_line_collection=True)
plt.title("h[n] = 2n")
plt.show()
```



In [129]:
```
# Soru 8) 21-e
n_e = np.arange(-1,5,1)
print(n_e)
h_e = np.array([1,1,1,1,1,0.5])
n_e = n_e+1

for k in range(len(n_e)):
    print (k)
    h_e[k] = h_e[k] if(n_e[k]-3 == 0) else 0


print(n_e)
print(h_e)
plt.figure()
plt.stem(n_e, h_e, use_line_collection=True)
plt.show()
```

```
[-1  0  1  2  3  4]
0
1
2
3
4
5
[0 1 2 3 4 5]
[0. 0. 0. 1. 0. 0.]
```