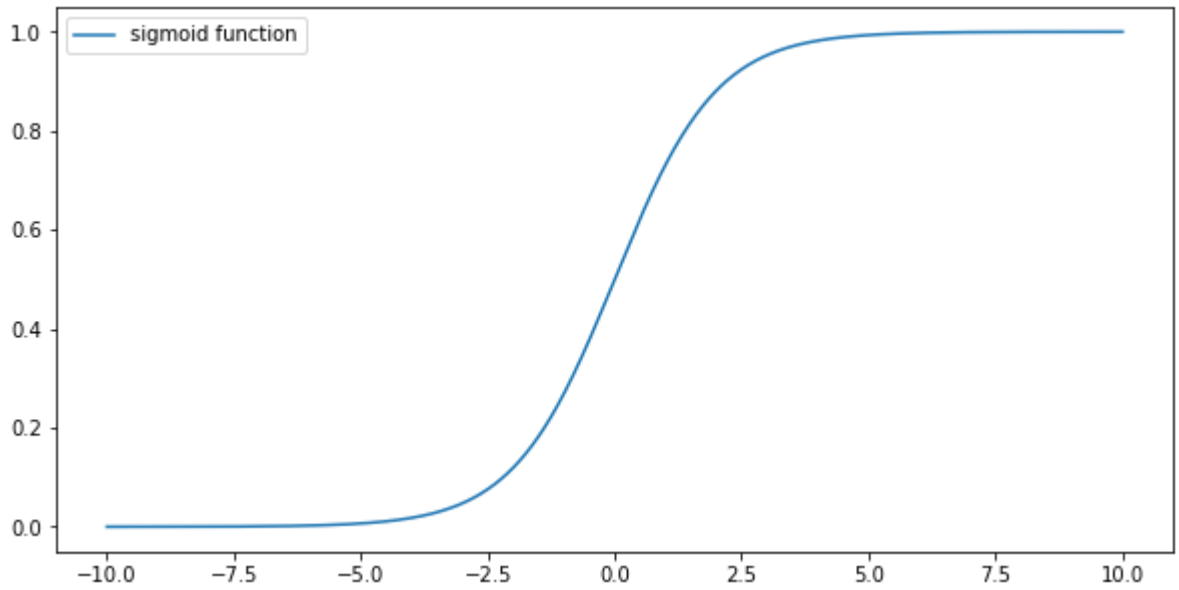
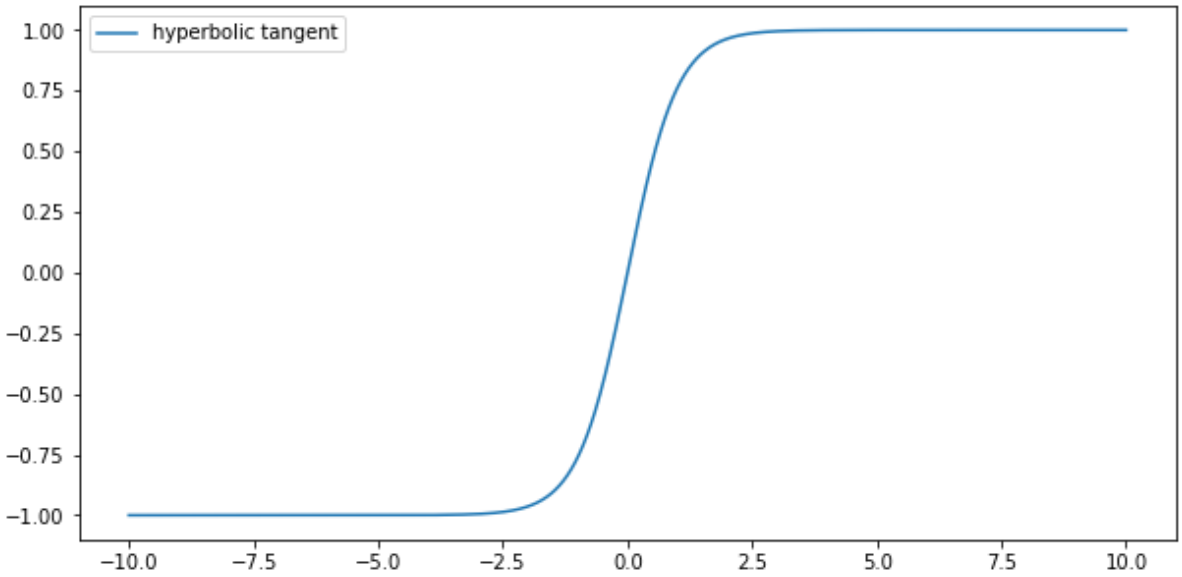
In [1]:
```
import numpy as np
import matplotlib.pyplot as plt
%matplotlib inline
```

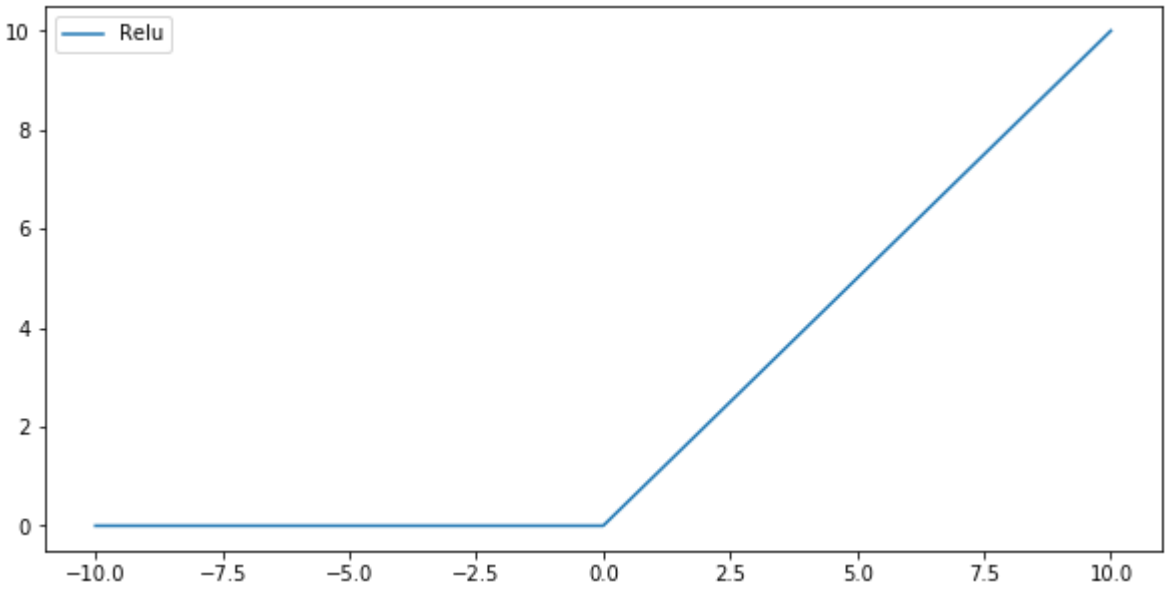
In [2]:
```
x = np.linspace(-10, 10, 1000)
y = 1 / (1 + np.exp(-x) )

plt.figure(figsize=(10, 5))
plt.plot(x, y)
plt.legend(['sigmoid function'])
plt.show()
```



In [3]:
```
x = np.linspace(-10, 10, 1000)
y = ( 2 / (1 + np.exp(-2*x) ) ) -1

plt.figure(figsize=(10, 5))
plt.plot(x, y)
plt.legend(['hyperbolic tangent'])
plt.show()
```

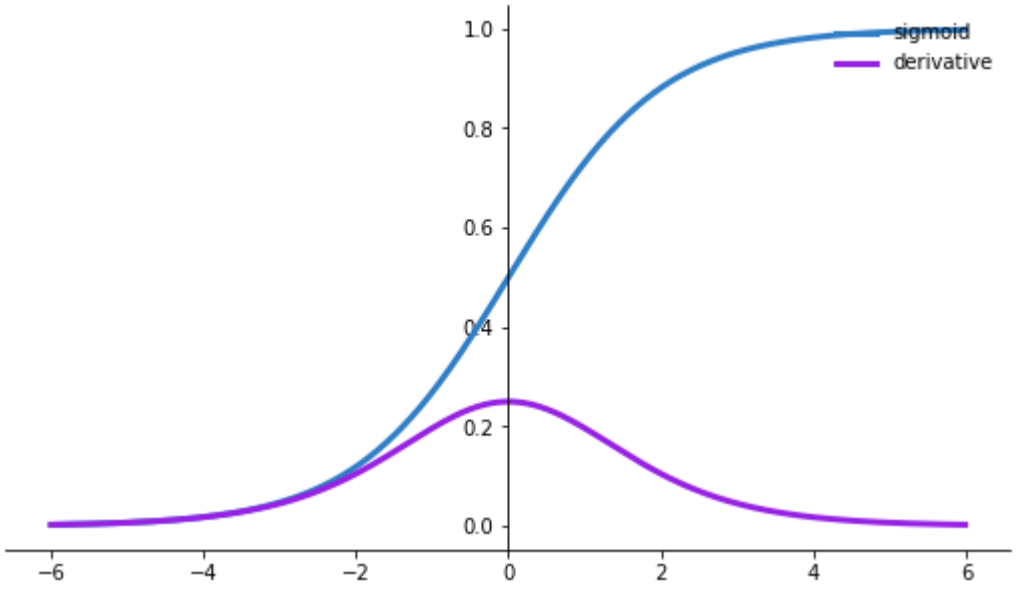


In [4]:
```
x = np.linspace(-10, 10, 1000)
y = np.maximum(0, x)

plt.figure(figsize=(10, 5))
plt.plot(x, y)
plt.legend(['Relu'])
plt.show()
```



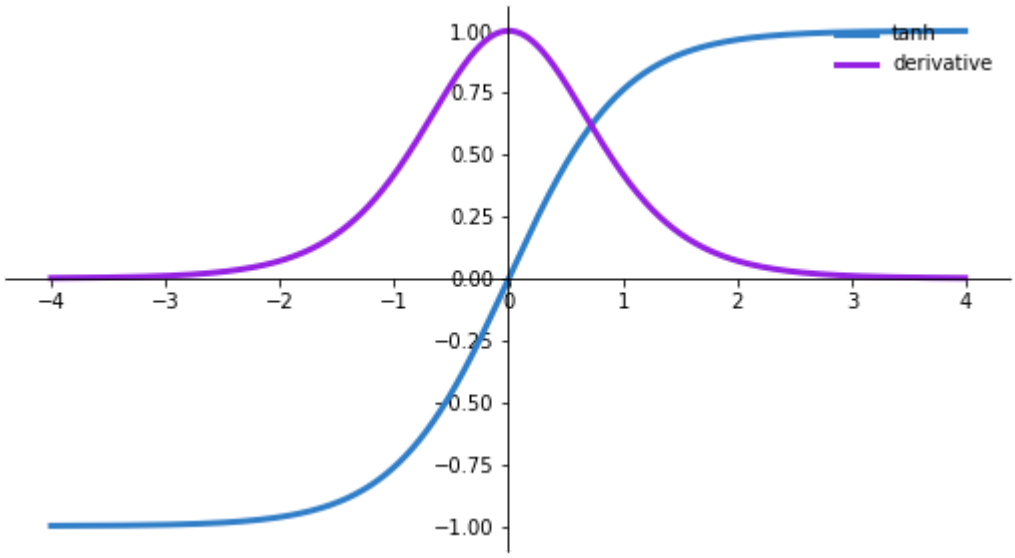
In [5]:
```
import matplotlib.pyplot as plt
import numpy as np

def sigmoid(x):
    s=1/(1+np.exp(-x))
    ds=s*(1-s)
    return s,ds
x=np.arange(-6,6,0.01)
sigmoid(x)
# Setup centered axes
fig, ax = plt.subplots(figsize=(9, 5))
ax.spines['left'].set_position('center')
ax.spines['right'].set_color('none')
ax.spines['top'].set_color('none')
ax.xaxis.set_ticks_position('bottom')
ax.yaxis.set_ticks_position('left')
# Create and show plot
ax.plot(x,sigmoid(x)[0], color="#307EC7", linewidth=3, label="sigmoid")
ax.plot(x,sigmoid(x)[1], color="#9621E2", linewidth=3, label="derivative")
ax.legend(loc="upper right", frameon=False)
fig.show()
```

```
C:\Users\HP\Desktop\New folder\lib\site-packages\ipykernel_launcher.py:21: Us
erWarning: Matplotlib is currently using module://ipykernel.pylab.backend_inl
ine, which is a non-GUI backend, so cannot show the figure.
```



In [6]:
```
import matplotlib.pyplot as plt
import numpy as np

def tanh(x):
    t=(np.exp(x)-np.exp(-x))/(np.exp(x)+np.exp(-x))
    dt=1-t**2
    return t,dt
z=np.arange(-4,4,0.01)
tanh(z)[0].size,tanh(z)[1].size
# Setup centered axes
fig, ax = plt.subplots(figsize=(9, 5))
ax.spines['left'].set_position('center')
ax.spines['bottom'].set_position('center')
ax.spines['right'].set_color('none')
ax.spines['top'].set_color('none')
ax.xaxis.set_ticks_position('bottom')
ax.yaxis.set_ticks_position('left')
# Create and show plot
ax.plot(z,tanh(z)[0], color="#307EC7", linewidth=3, label="tanh")
ax.plot(z,tanh(z)[1], color="#9621E2", linewidth=3, label="derivative")
ax.legend(loc="upper right", frameon=False)
fig.show()
```

```
C:\Users\HP\Desktop\New folder\lib\site-packages\ipykernel_launcher.py:22: Us
erWarning: Matplotlib is currently using module://ipykernel.pylab.backend_inl
ine, which is a non-GUI backend, so cannot show the figure.
```



In [ ]: