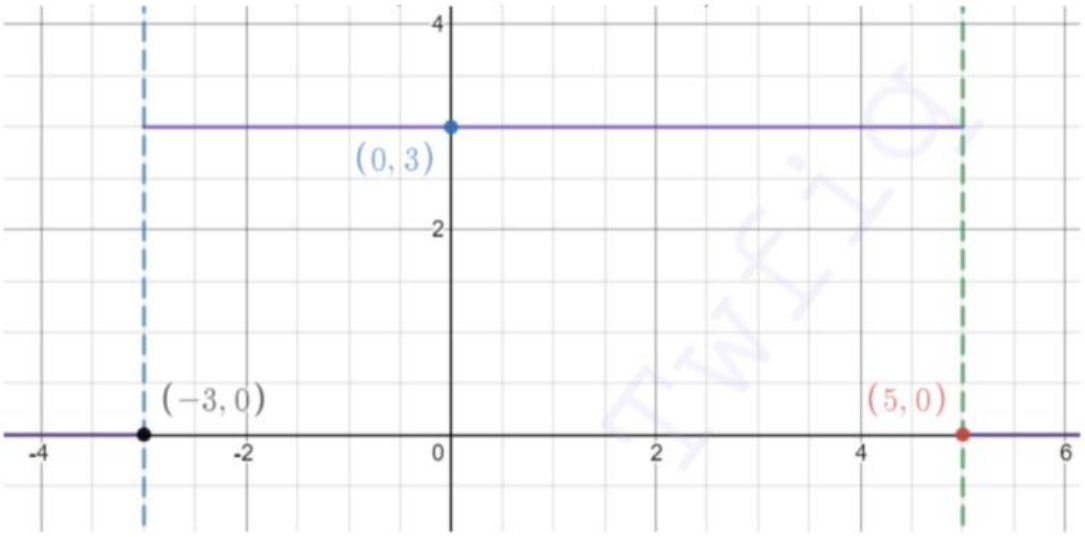
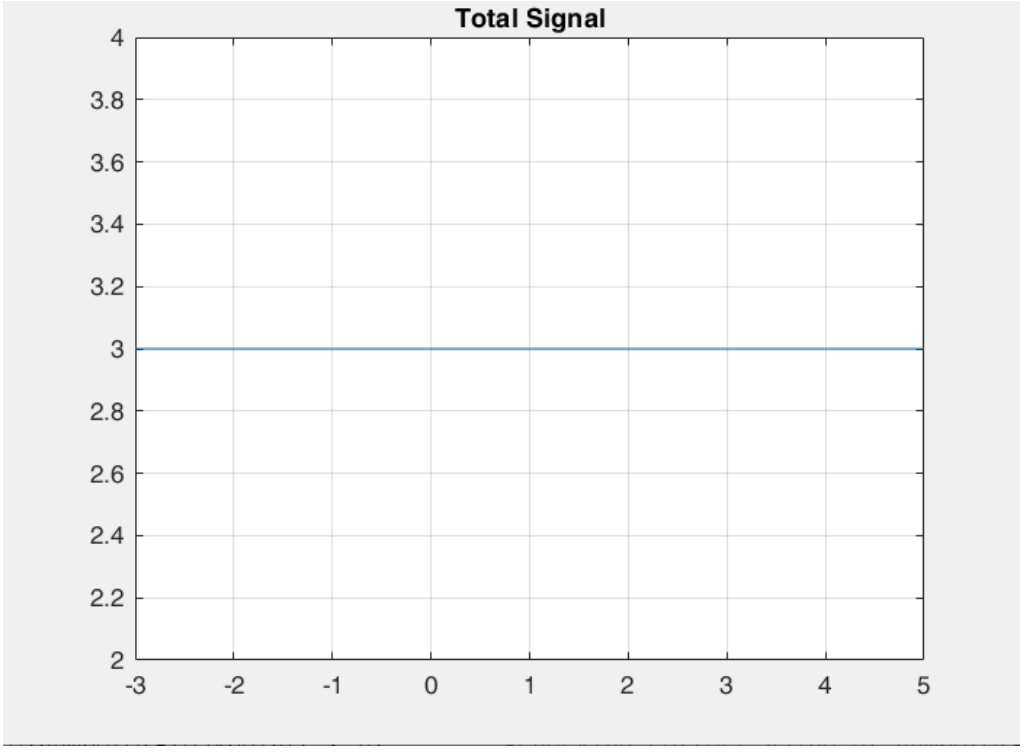
Test Cases:

Test 1

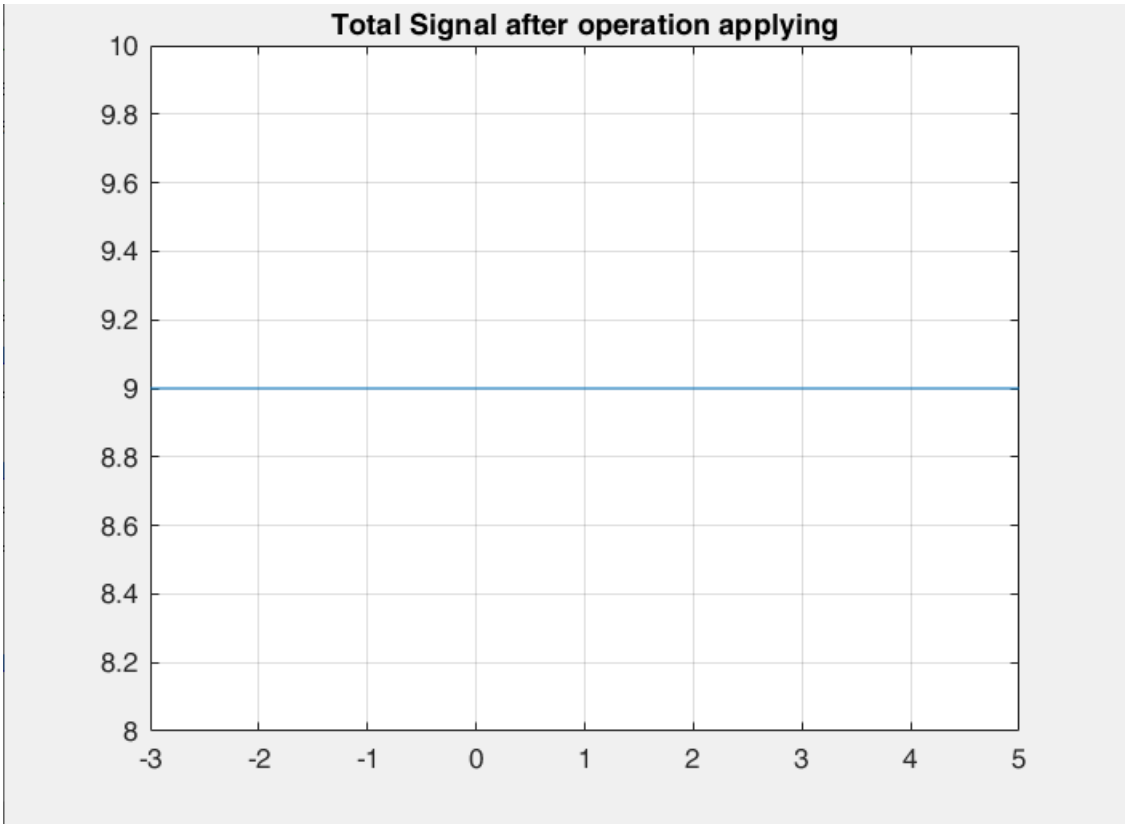


Function:

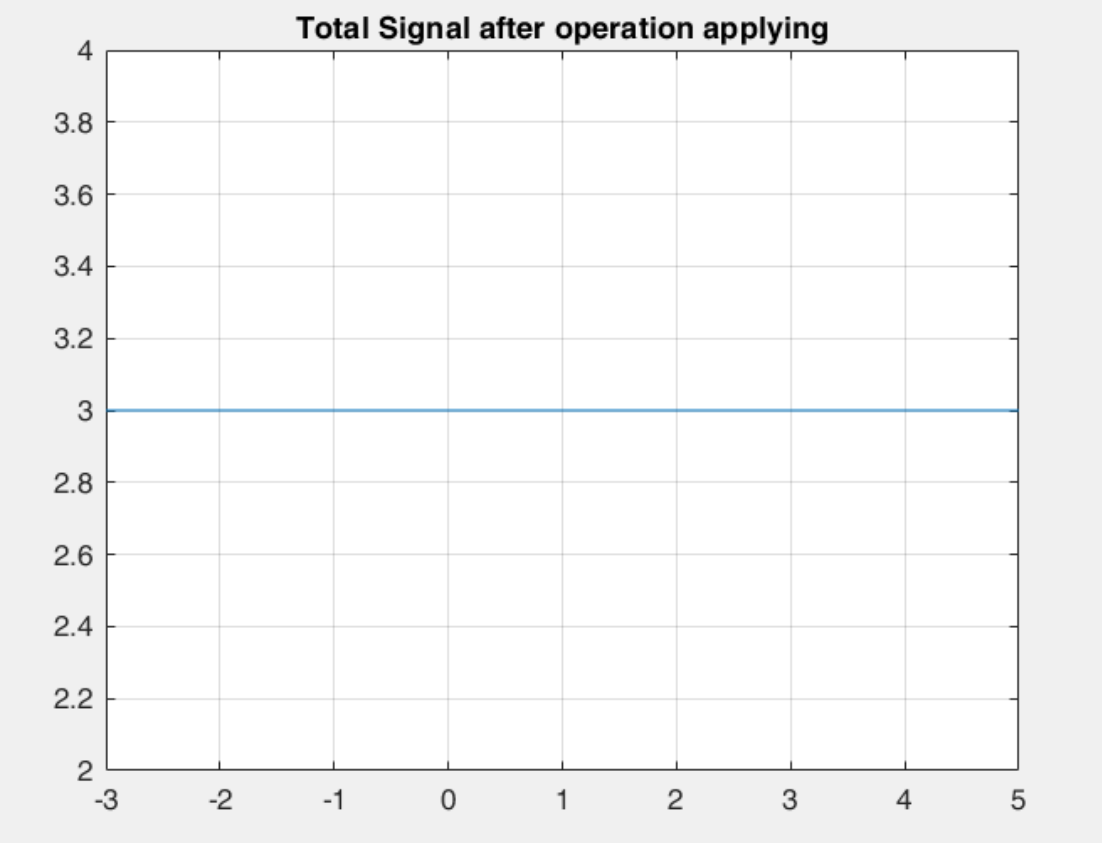
$$y = 3\big(u(t+3) - u(t-5)\big)$$



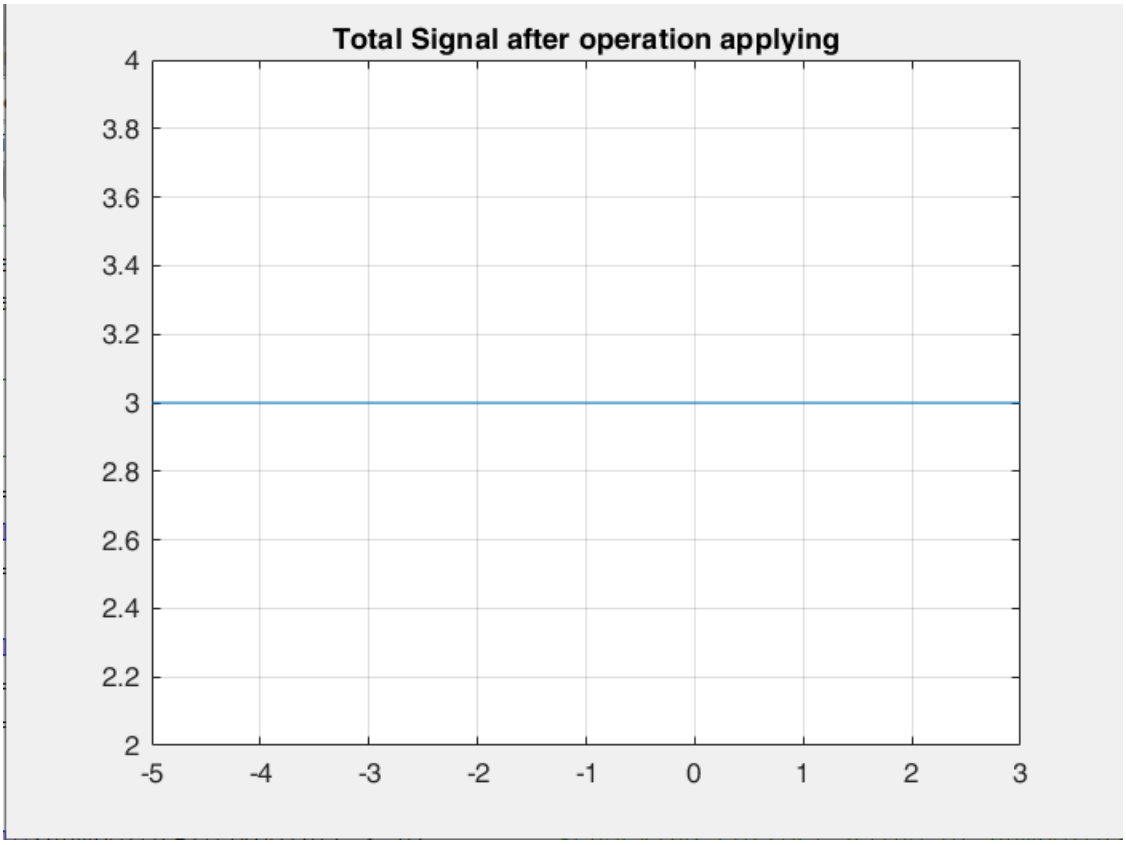
Amplitude scaling by value of 3



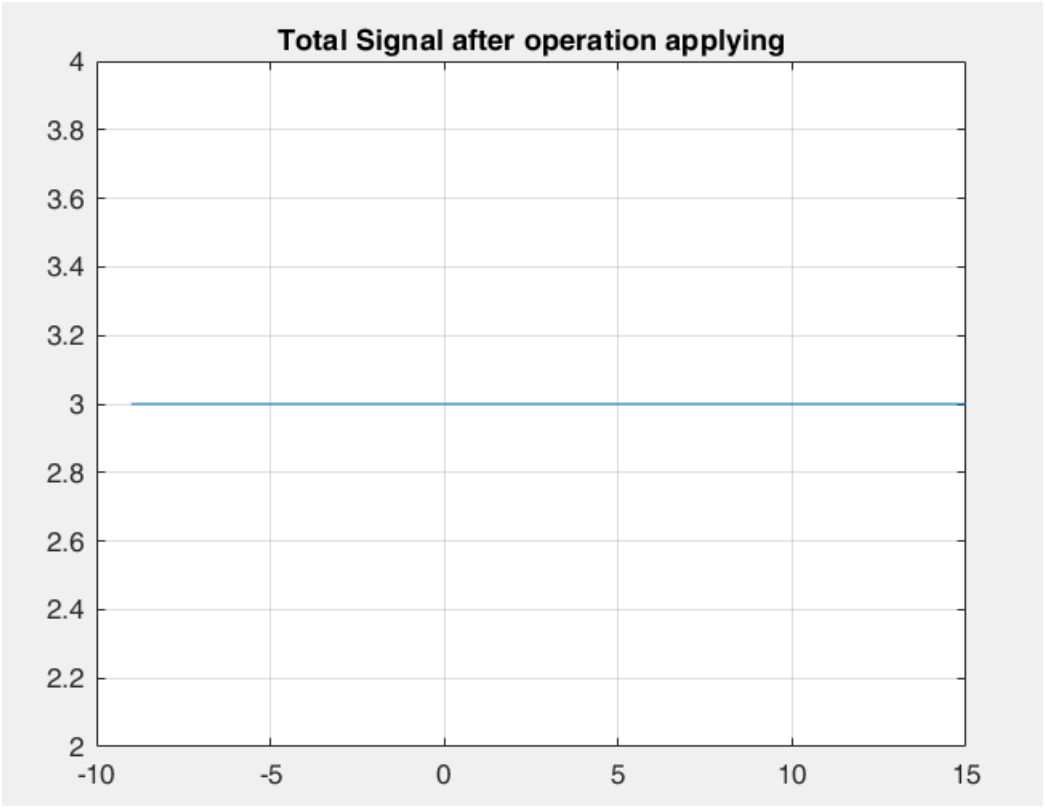
Time reversal



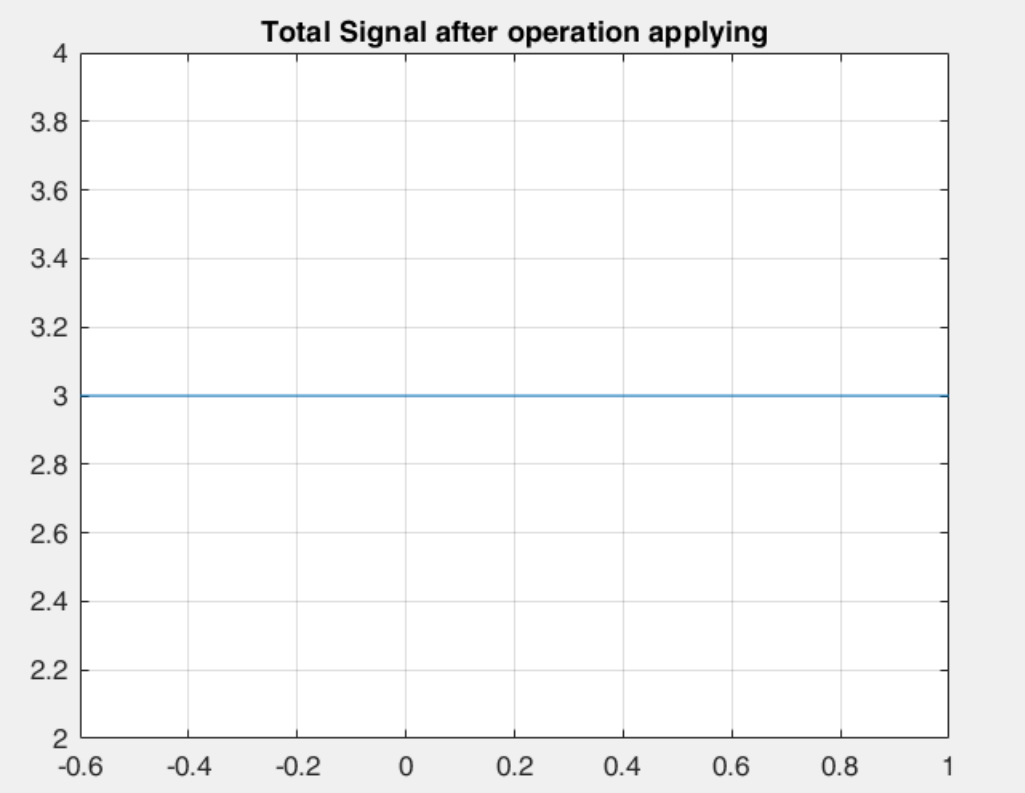
Time shift by value of 2



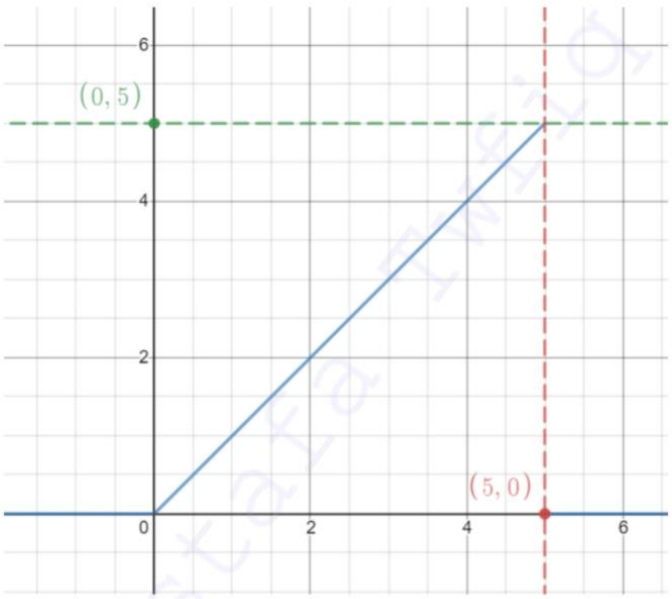
Expanding by value of 3



Compressing by value of 5

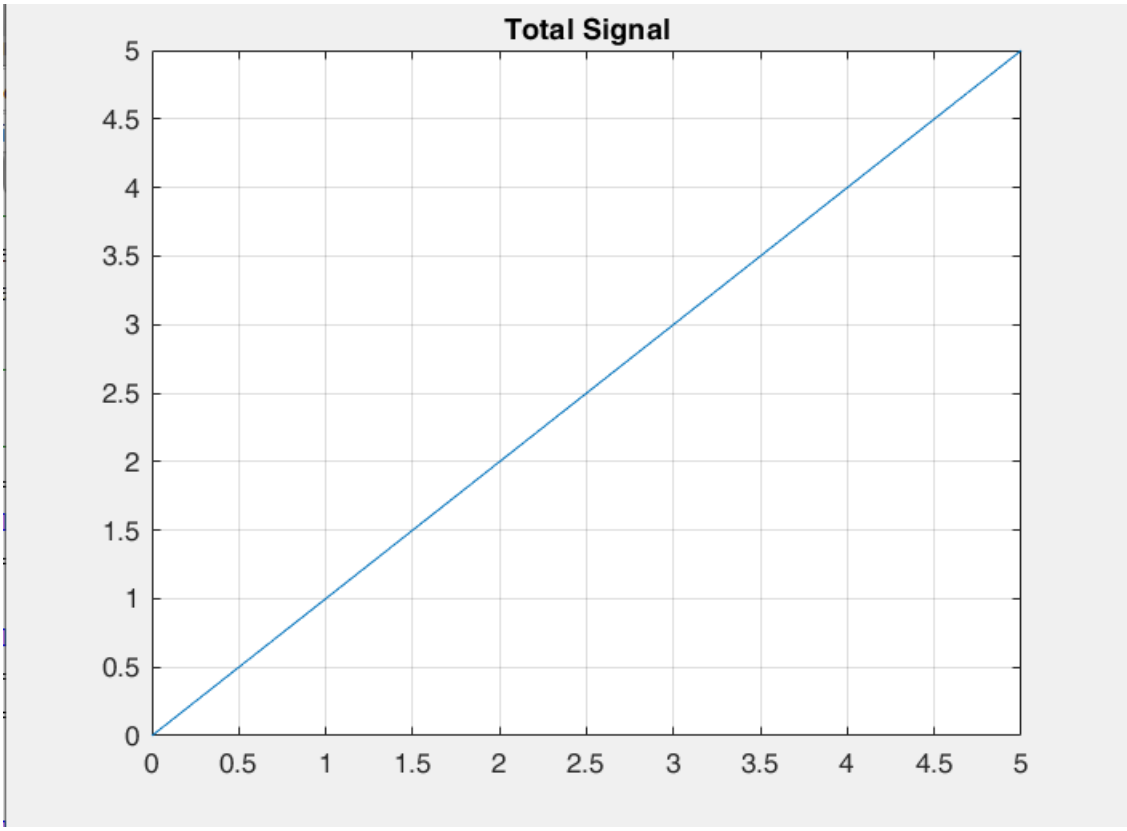


Test 2

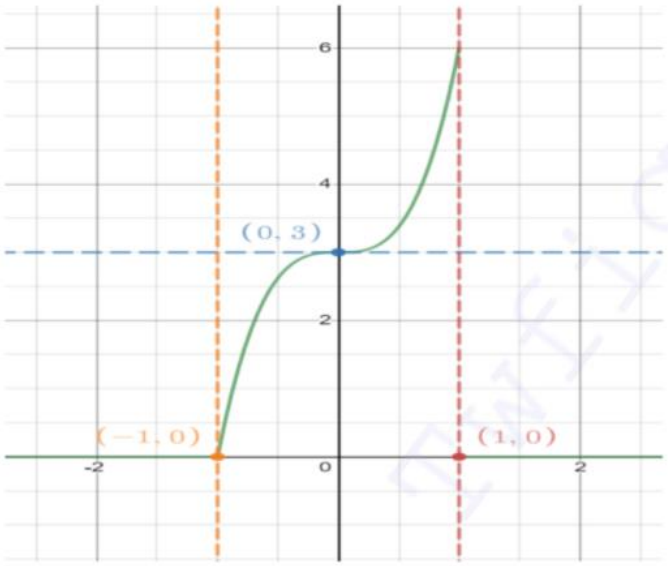


Function:

$$y = tu(t) - (t-5)u(t-5) - 5u(t-5)$$

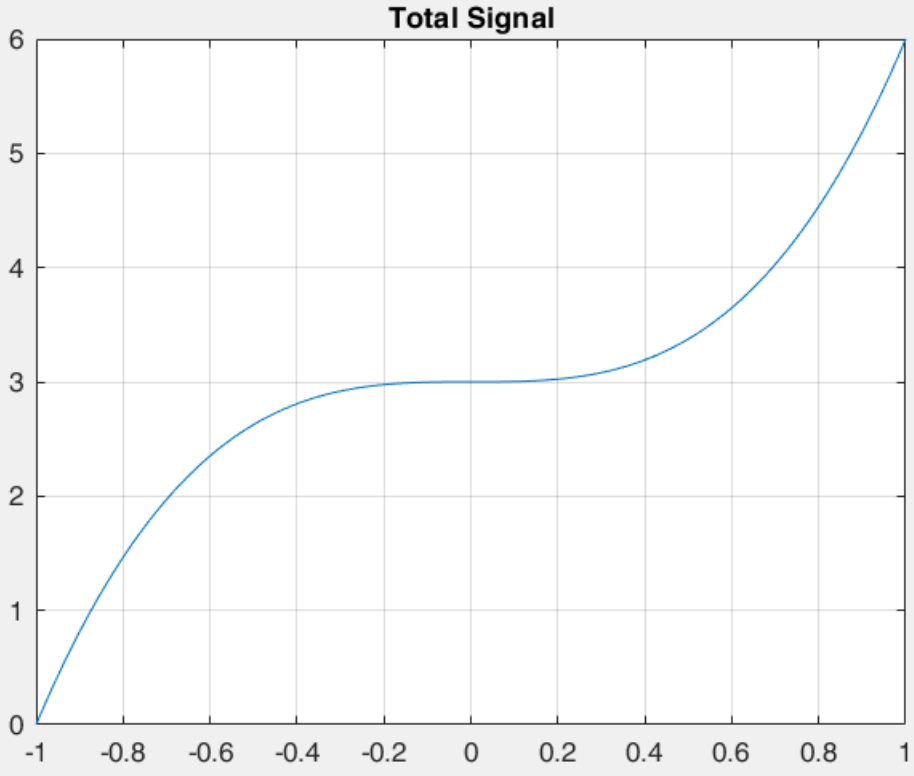


Test 3

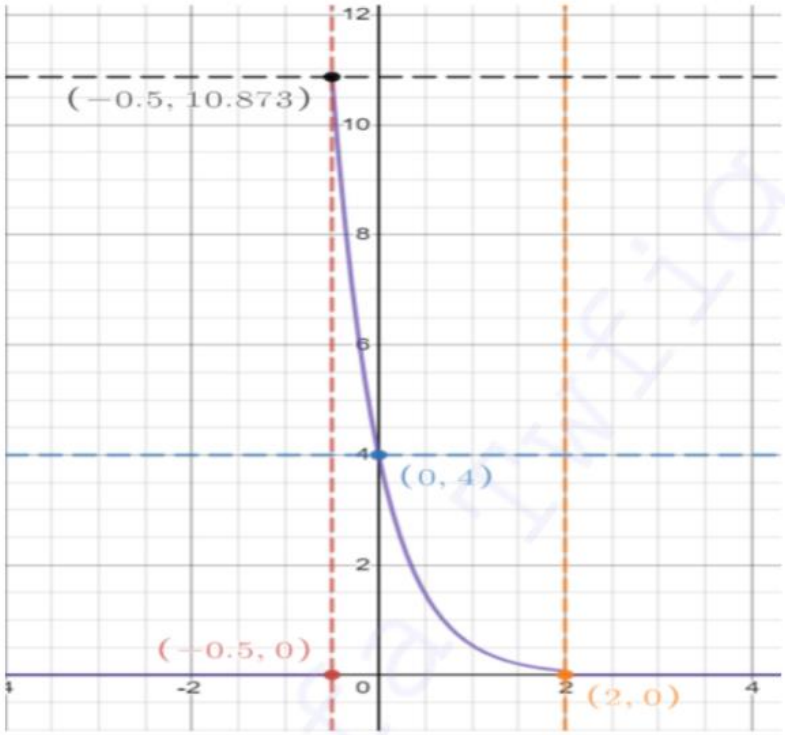


Function:

$$y = \left(3t^3 + 3\right) \cdot \left(u(t+1) - u(t-1)\right)$$

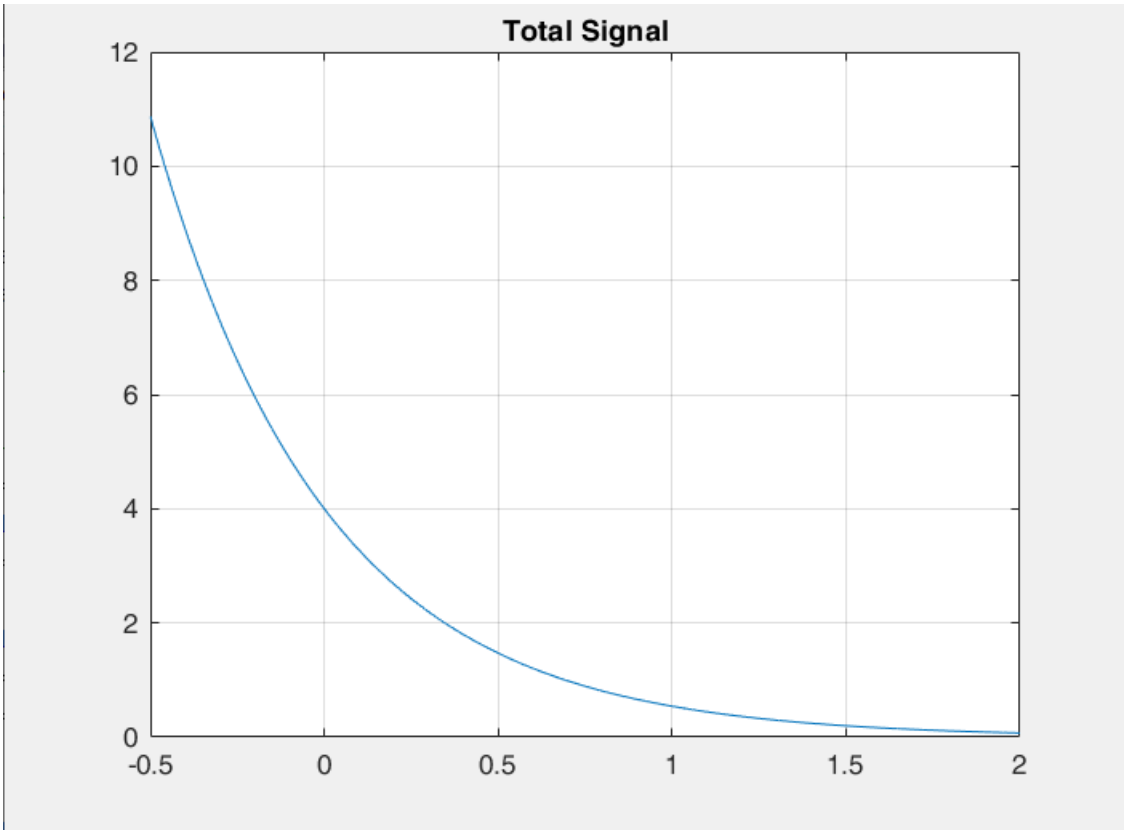


Test 4

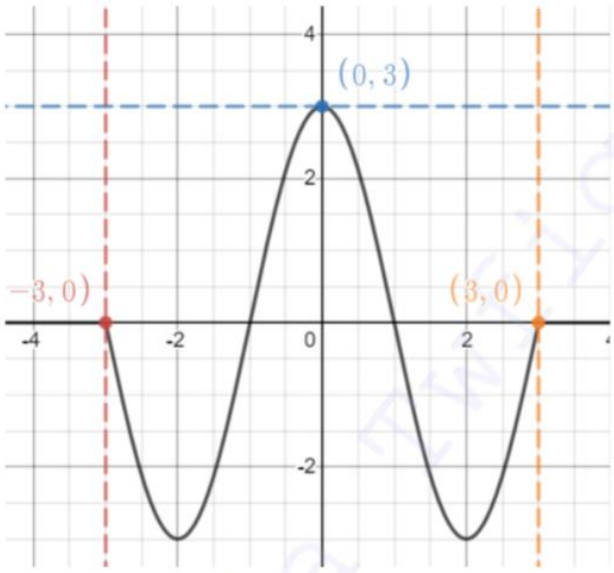


Function:

$$y = 4e^{-2t} \cdot \big(u(t+0.5) - u(t-2)\big)$$

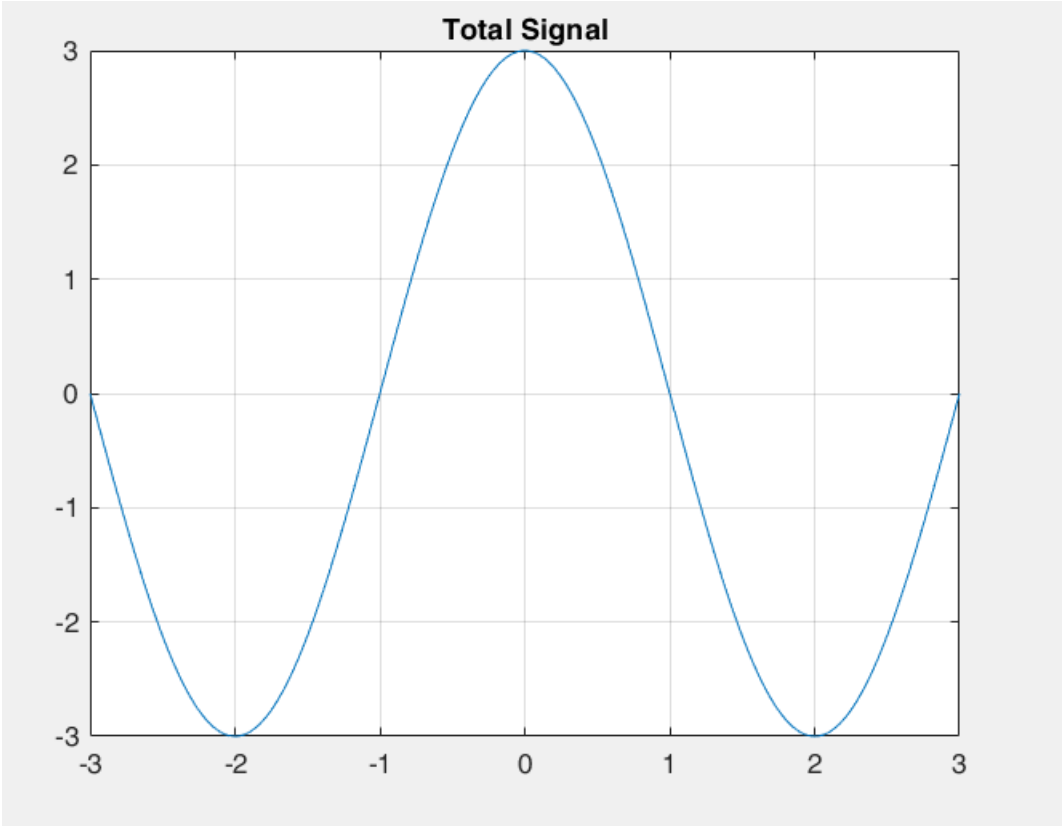


Test 5

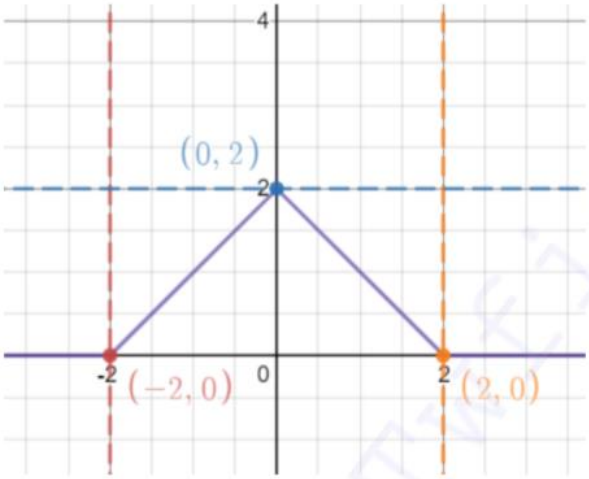


Function:

$$y = 3\ \sin\left(2 \cdot \pi \cdot 0.25 \cdot t + \frac{\pi}{2}\right) \cdot \left(u(t+3) - u(t-3)\right)$$

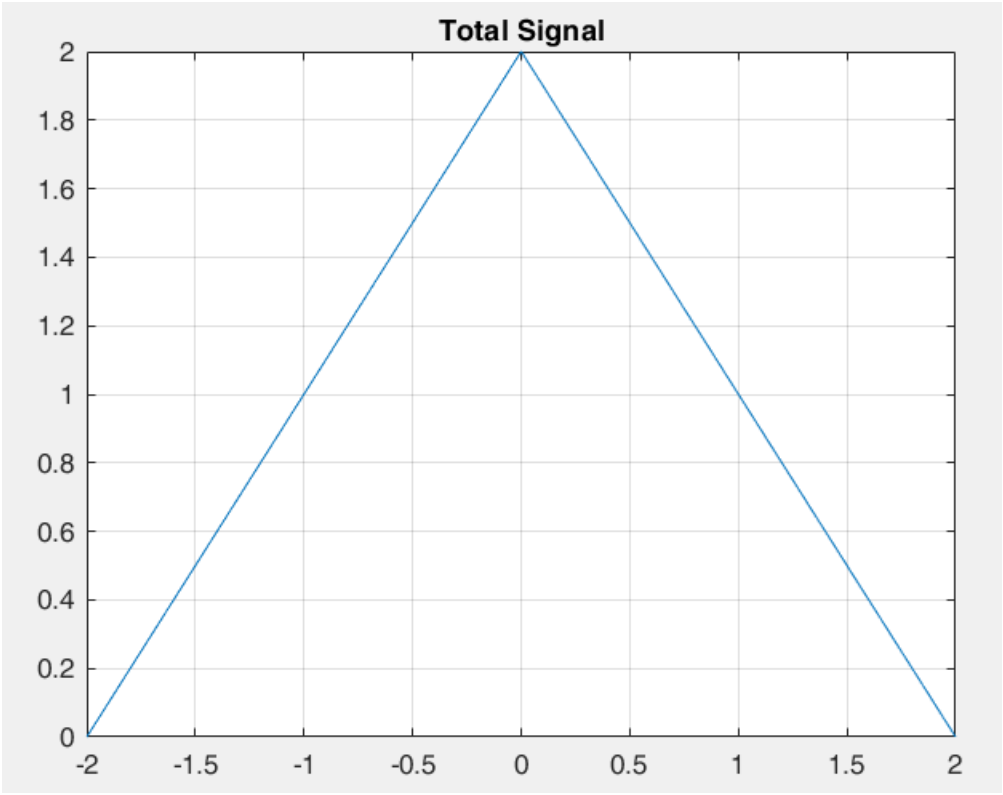


Test 6

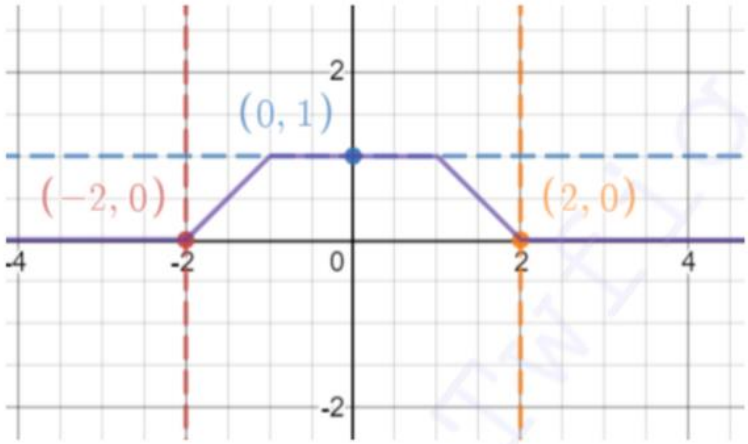


Function:

$$y = (t+2)u(t+2) - 2(t)\,u(t) + (t-2)u(t-2)$$

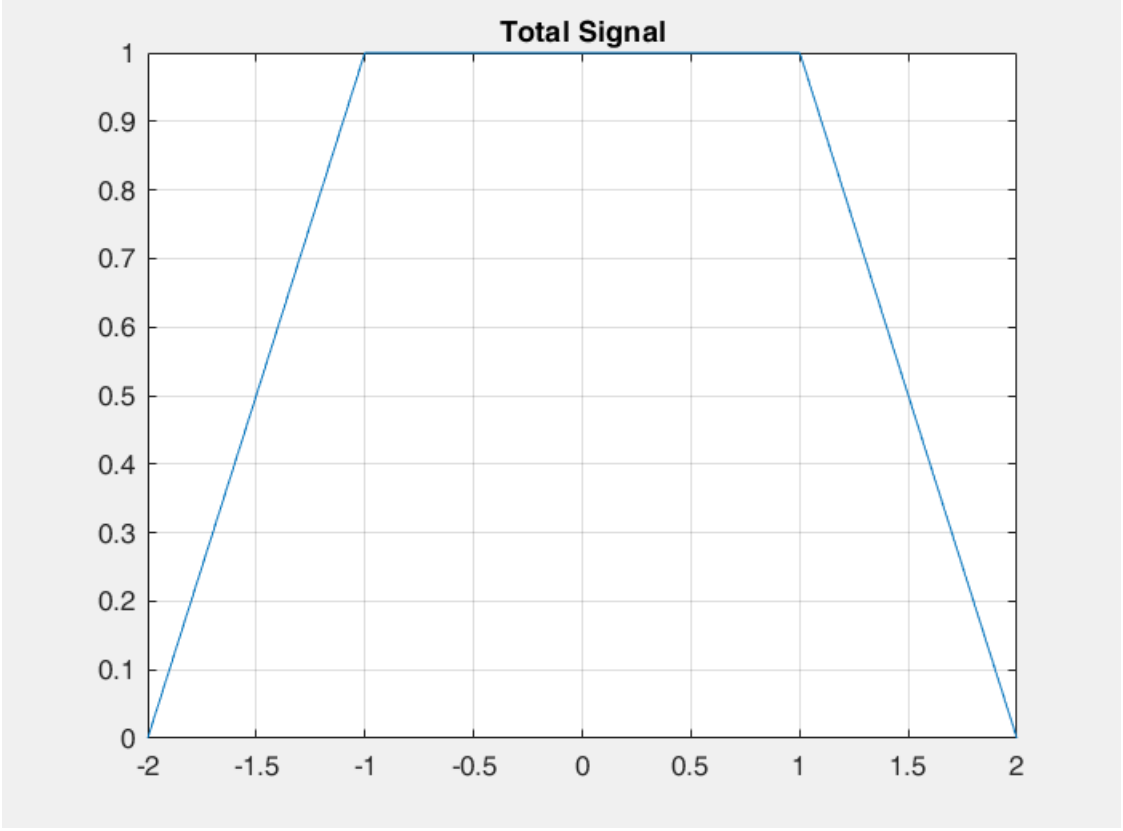


Test 7

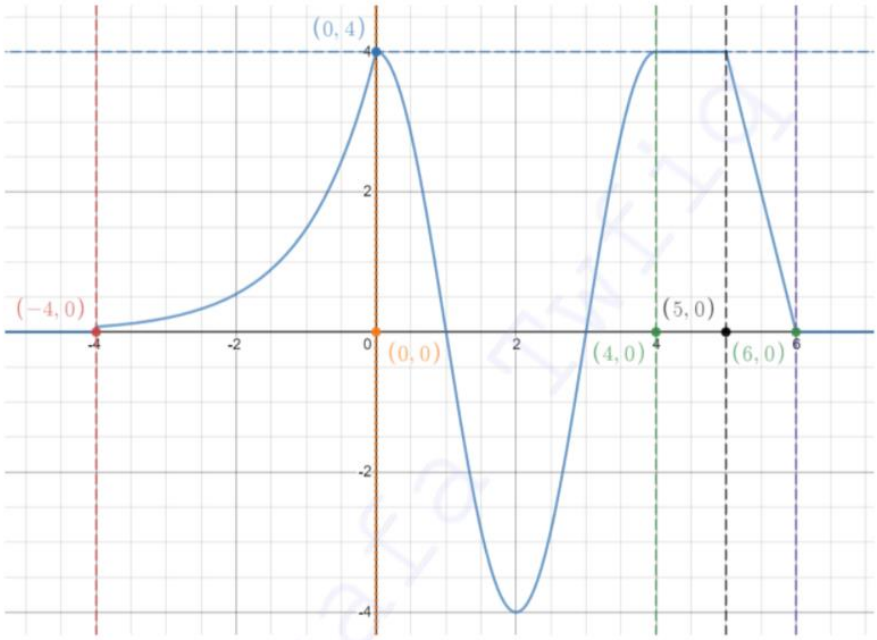


Function:

$$y = (t+2)u(t+2) - (t+1)u(t+1) - (t-1)u(t-1) + (t-2)u(t-2)$$

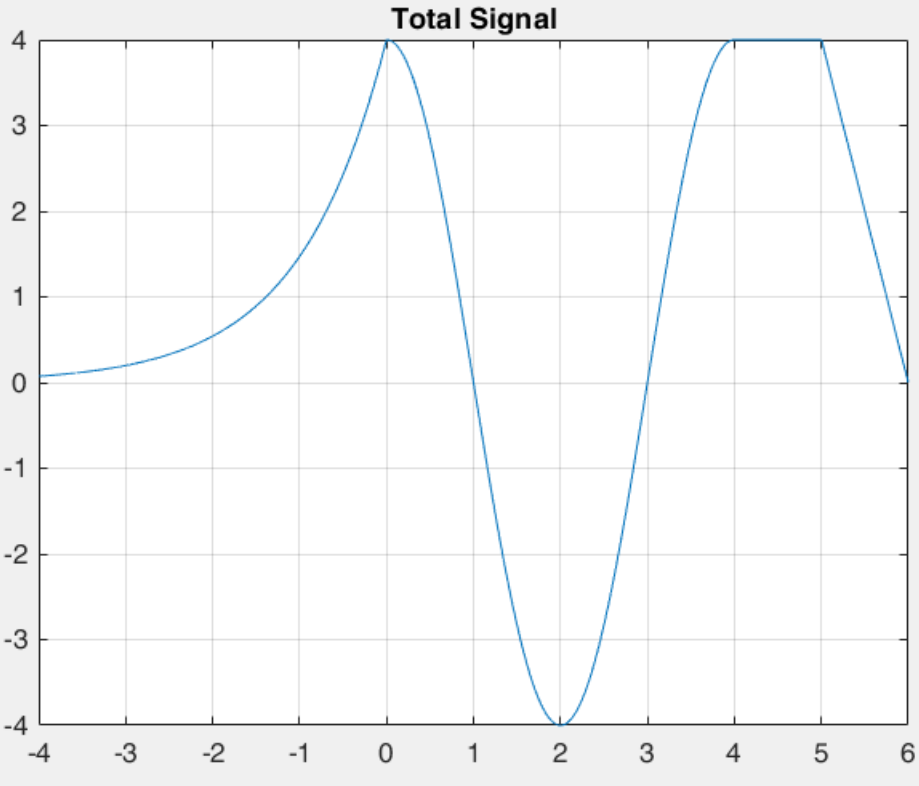


Test 8

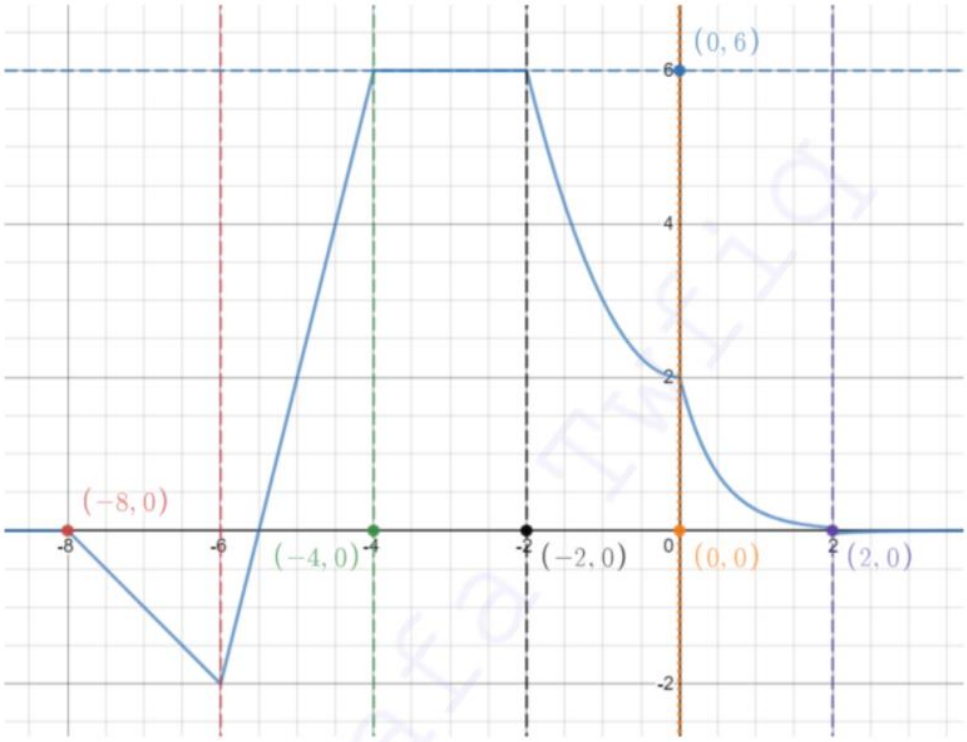


Function:

$$y = 4e^{t} \cdot \left(u(t+4) - u(t)\right) + 4\sin\left(2 \cdot \pi \cdot 0.25t + \frac{\pi}{2}\right) \cdot \left(u(t) - u(t-4)\right) + 4u(t-4) - 4(t-5)u(t-5) + 4(t-6)\,u\,(t-6)$$

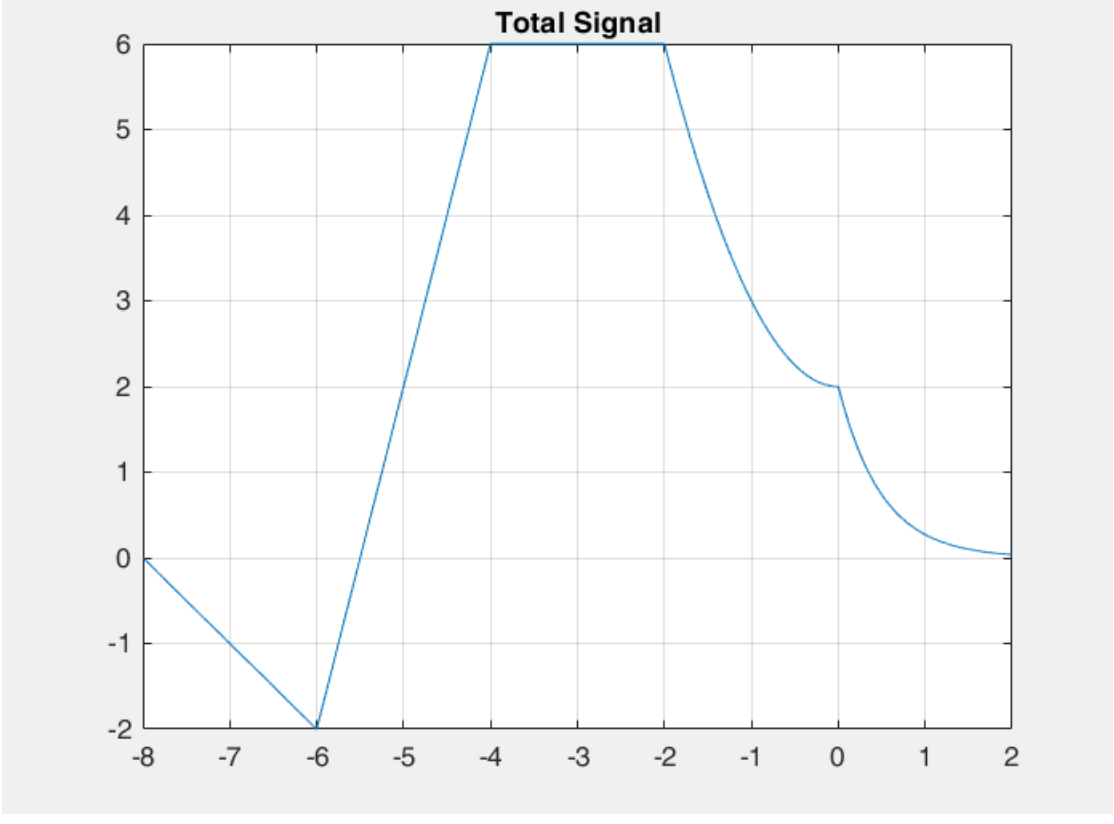


Test 9

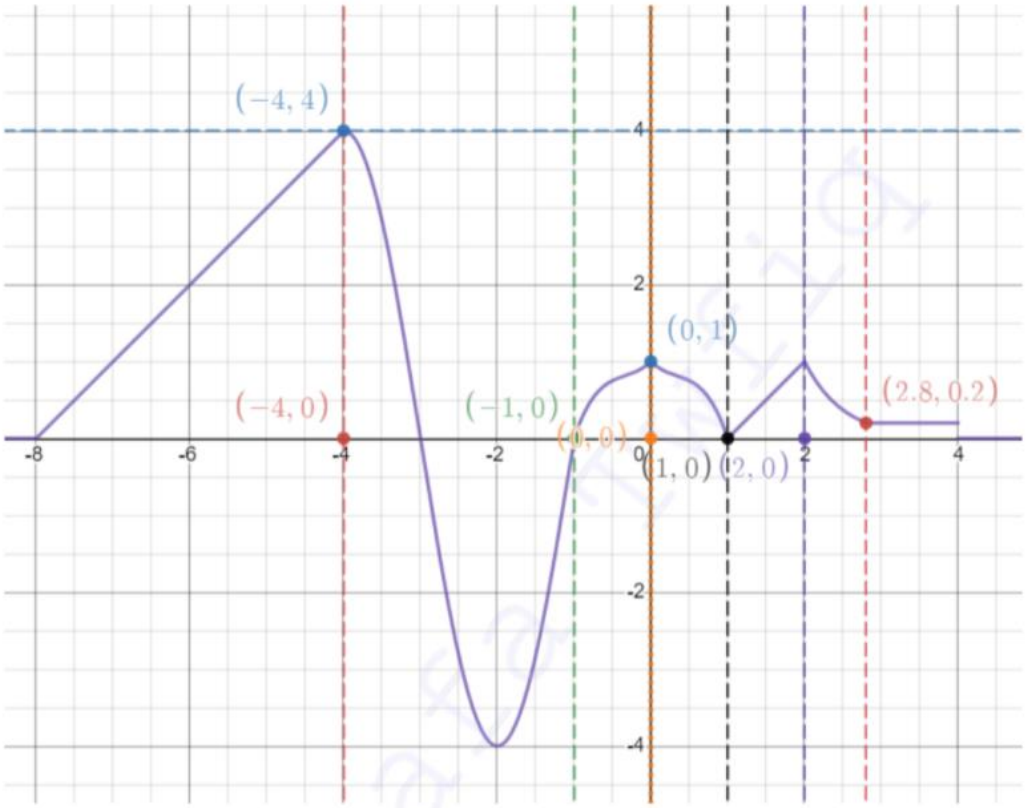


Function:

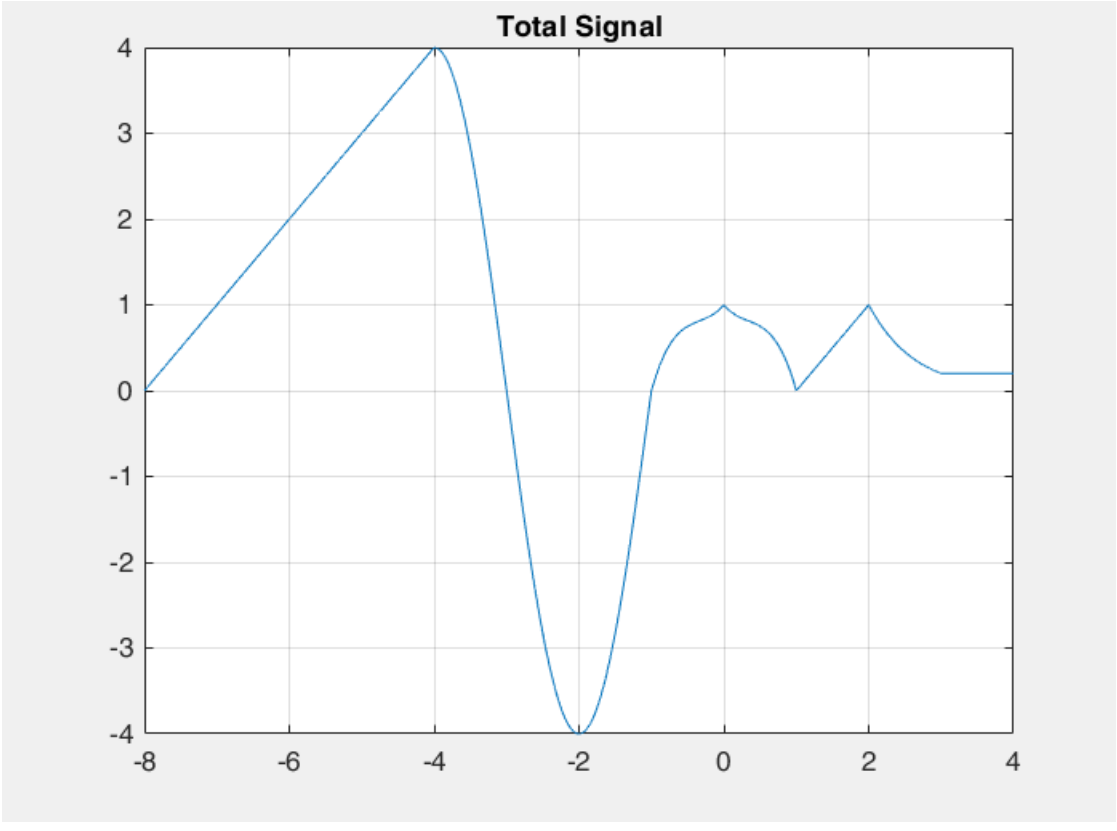
$$y = -(t+8)u(t+8) + 5(t+6)u(t+6) - 4(t+4)u(t+4) - 6u(t+2) + \left(t^2+2\right) \cdot \left(u(t+2) - u(t)\right) + 2e^{-2t} \cdot \left(u(t) - 2u(t-2)\right)$$



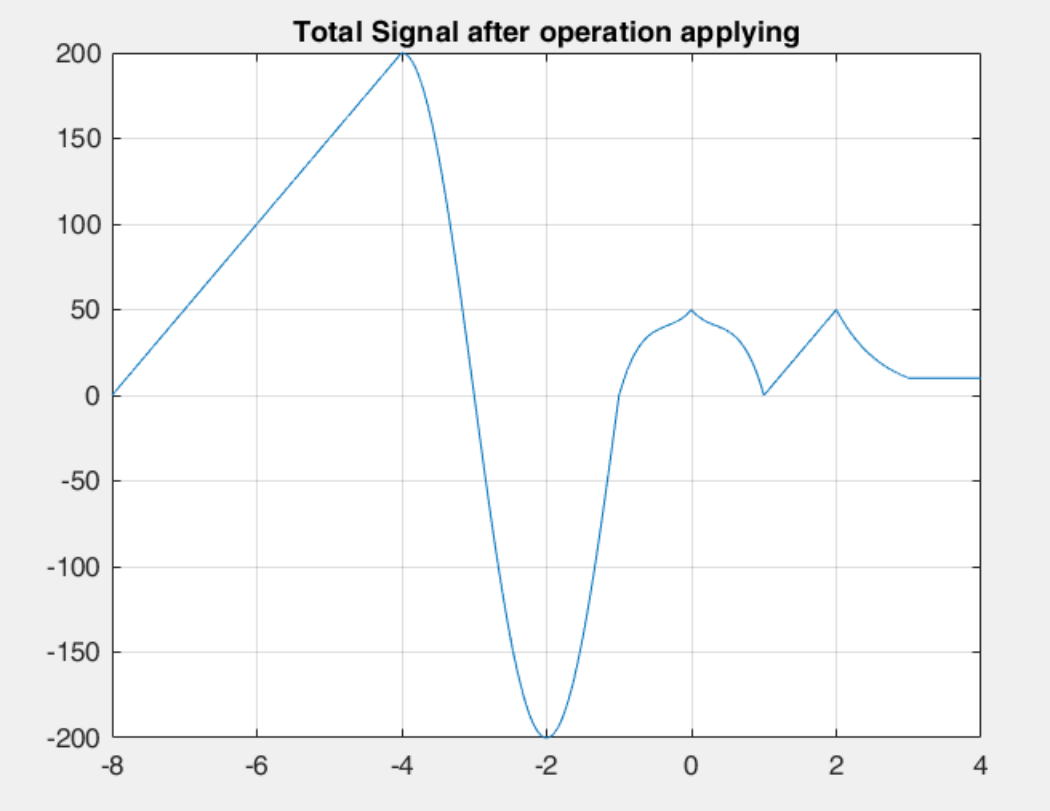
Test 10



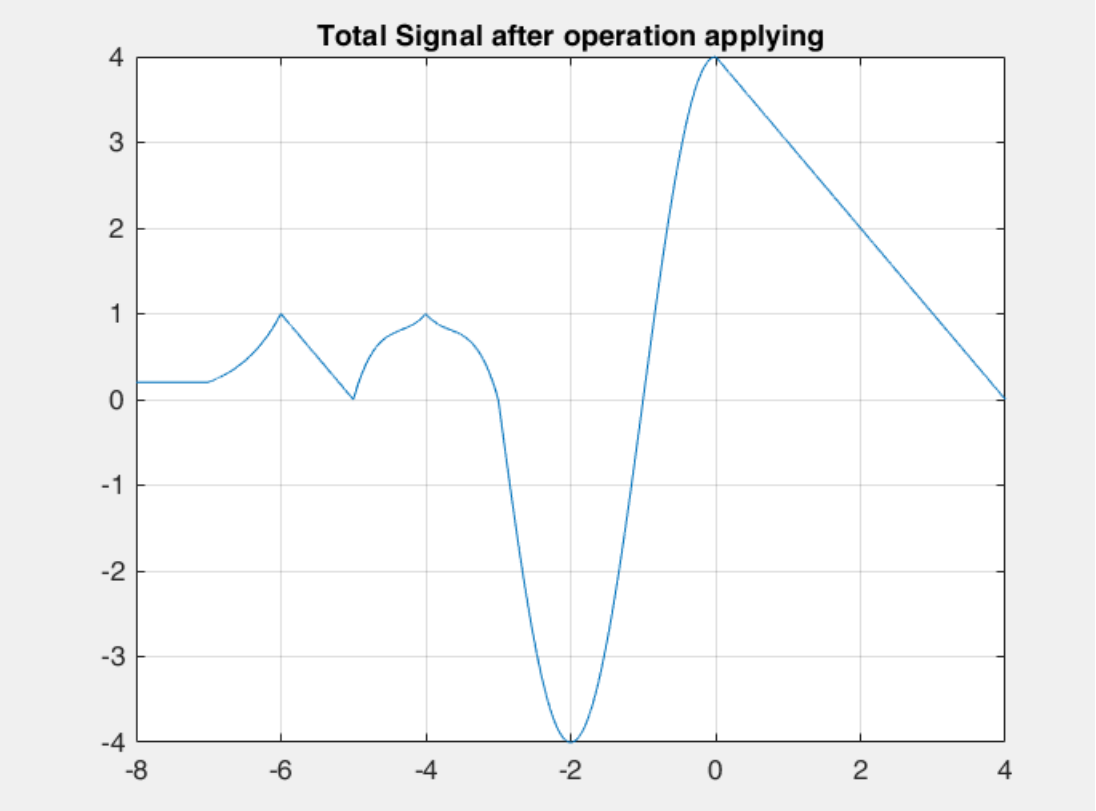
Function:



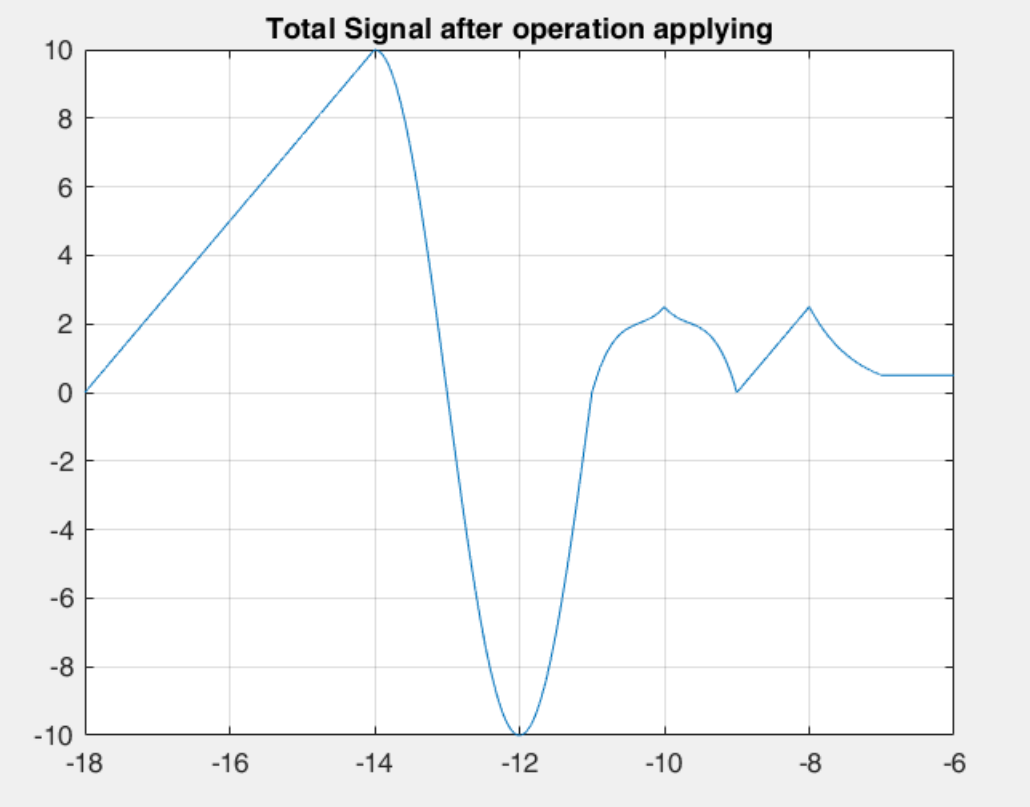
Amplitude scaling by value 50



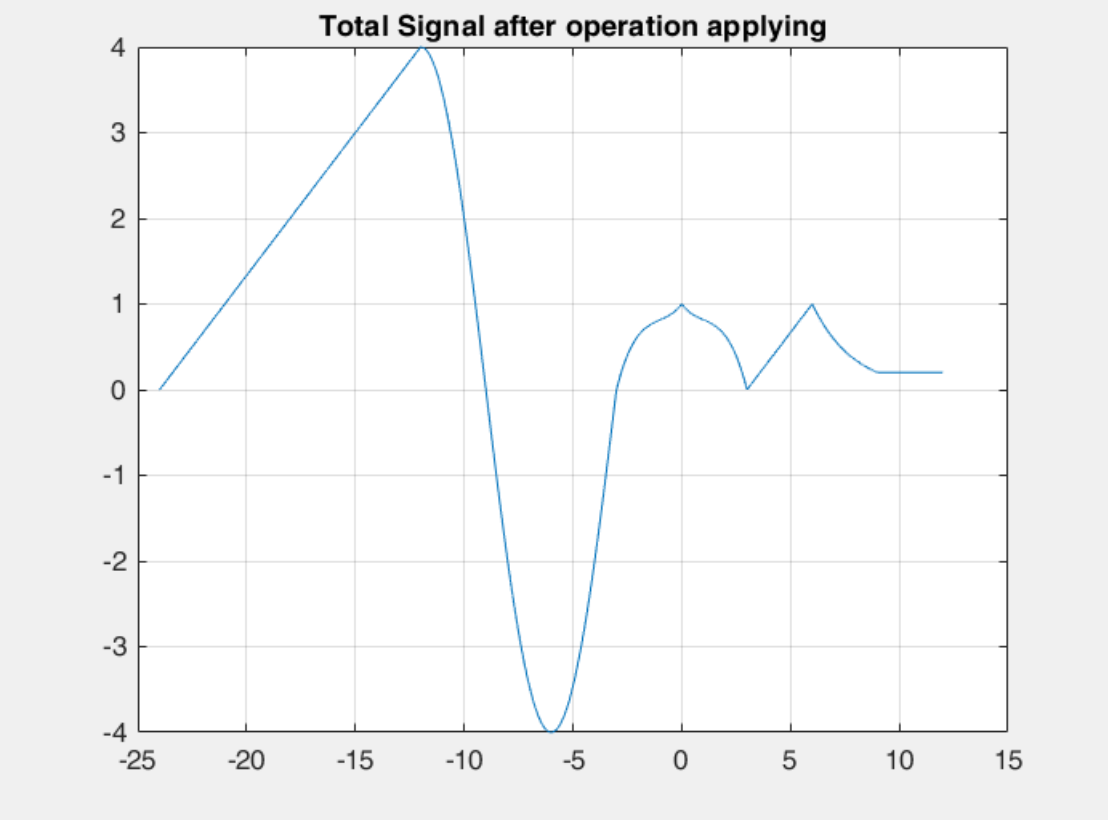
Time reversal



Time shift by value 10



Expanding by value 3



Compressing by value of 3