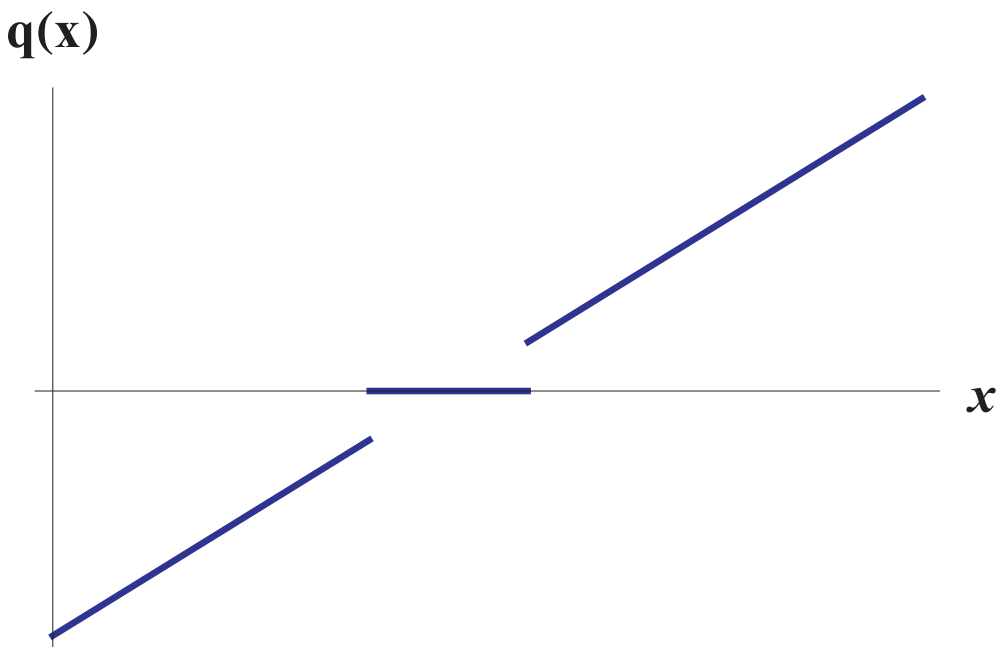
The most basic quantization technique is **Thresholding**:

Given a signal $\vec{x} = (x_i)$ and a single threshold σ, we replace values as follows:

$$q(x_i) = \begin{cases} 0 & \text{if } |x_i| \leq \sigma \\ x_i & \text{if } |x_i| > \sigma \end{cases}$$

The thresholding quantization function:



The **Lossy JPEG2000 Quantization Scheme** also has one fixed parameter, τ. After wavelet transformation, a "step" quantization

$$q(x_i) = sgn(x_i) \cdot \sigma \cdot \left\lfloor \frac{|x_i|}{\sigma} \right\rfloor$$

is applied to each region with a parameter σ determined as follows:

$\frac{\tau}{2}$	τ
τ	2τ

$n = 1$

The **Lossy JPEG2000 Quantization Scheme** also has one fixed parameter, τ. After wavelet transformation, a "step" quantization

$$q(x_i) = sgn(x_i) \cdot \sigma \cdot \left\lfloor \frac{|x_i|}{\sigma} \right\rfloor$$

is applied to each region with a parameter σ determined as follows:

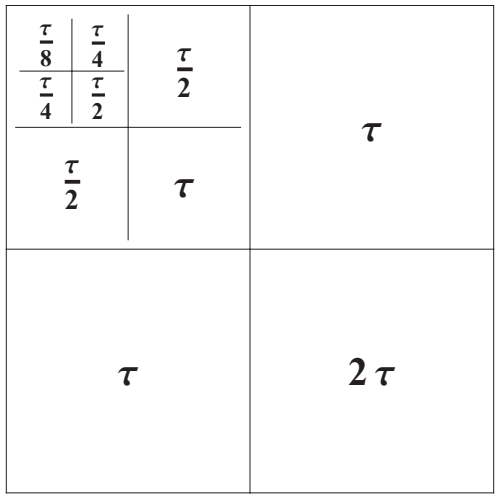
$\frac{\tau}{4}$	$\frac{\tau}{2}$	τ
$\frac{\tau}{2}$	τ	
τ		2τ

$n = 2$

The **Lossy JPEG2000 Quantization Scheme** also has one fixed parameter, τ. After wavelet transformation, a "step" quantization

$$q(x_i) = sgn(x_i) \cdot \sigma \cdot \left\lfloor \frac{|x_i|}{\sigma} \right\rfloor$$

is applied to each region with a parameter σ determined as follows:



$n = 3$

The quantization function for a given region: