

① Convert Binary to Decimal

$$11101.001$$

$$= 1 \times 2^4 + 1 \times 2^3 + 1 \times 2^2 + 0 \times 2^1 + 1 \times 2^0 + 0 \times 2^{-1} + 0 \times 2^{-2} + 1 \times 2^{-3}$$

$$= \boxed{\hspace{10em}}$$

② Convert Decimal to Binary

$$45.875 = (101101)_{2}$$

$\downarrow \quad \downarrow \quad \downarrow \quad \downarrow$   
 $32 \quad 8 \quad 4 \quad 1$

$45$

2	45	①
2	22	↑
2	11	0
2	5	1
2	2	1
2	1	0
	0	1

$$45.875 = (101101.111)_2$$

1/2	0.875	
1/2	0.750	1
1/2	0.5	1
1/2	0.0	0

$\downarrow$

$$V = [1 \ 2 \ 3 \ 4 \ 100 \ 1010]$$

use a for loop to remove the numbers are less than 4, put this updated vector in  $V_2$ .

$V = [ \quad ] ; j = 1 ;$

for  $i = 1 : \text{length}(V)$

if  $V(i) < 4$

~~end~~  
~~else~~  $V_2(j) = V(i) ;$

~~end~~  $j = j + 1 ;$

~~end~~ end

end

$$\boxed{-100 \leq x \leq 100}$$

$-100 \leq$   
for  $x < 0$ ,  $f(x) = \sin(x)$

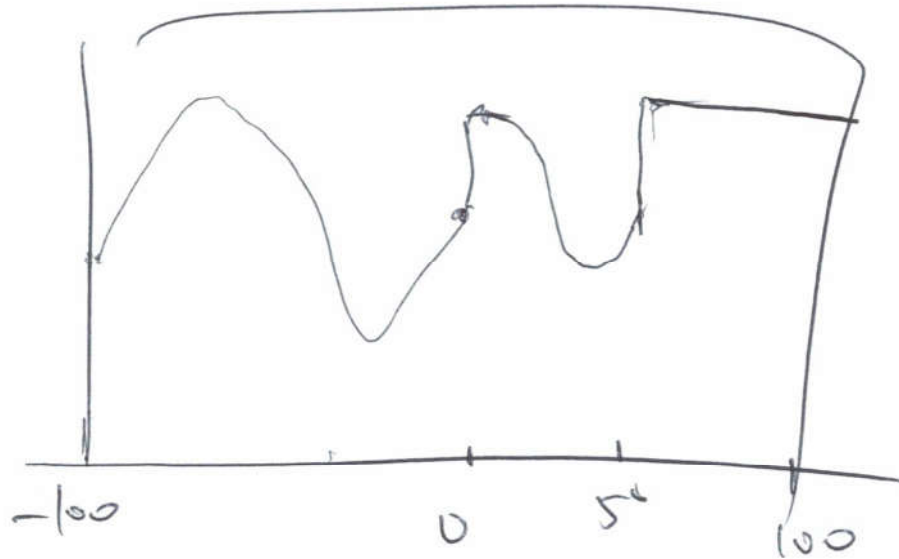
for  $0 \leq x \leq 50$ ,  $f(x) = \cos(x)$

for  $x > 50$ ,  $f(x) = 1$

~~$x \geq 0 = x < 50$~~

$x \geq 0$  &&  
 $x < 50$

set up a vector for  $x$ , Plot  $f(x)$  in the range of  $-100 \leq x \leq 100$ , in the same plot.



| &&

(3)

$x_1 = \text{linspace}(-100, 0, 100);$

~~⓪~~  $y_1 = \sin(x_1);$

$x_2 =$

$y_2 =$

$x_3 =$

$y_3 =$

$yy = [y_1 \ y_2 \ y_3]$

$xx = [x_1 \ x_2 \ x_3]$

$\text{plot}(xx, yy)$

# Independent Functions

test.m

```
V = [ 1 2 3 ];  
m = maxx(V);
```

maxx.m

```
function m = maxx(V)  
m = V(1);  
m = maxx(V);  
for i = 1:length(V)  
    if V(i) > m  
        m = V(i);  
    end  
end  
end
```

zerokick.m

```
function V = zerokick(V)  
for i = 1:length(V)  
    if 0 == V(i)  
        V(i) = 1;  
    end  
end  
end
```

test.m

```
v = [ ]  
avg_l = avg(v);
```

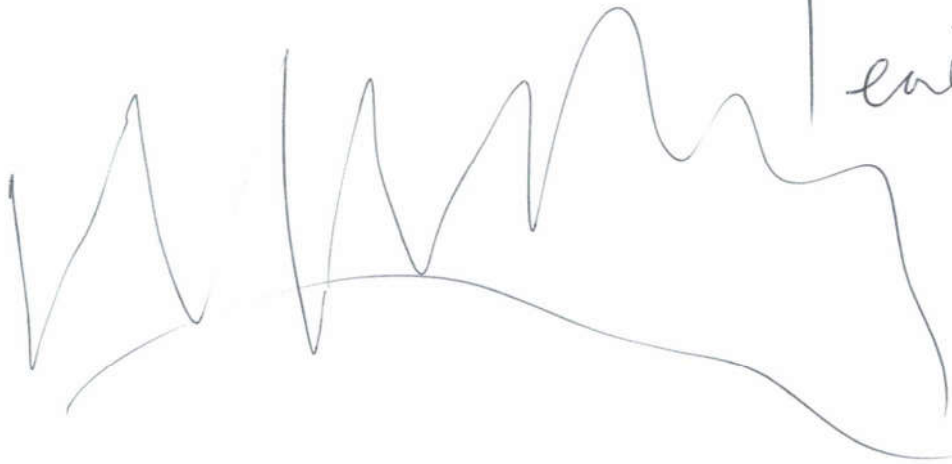
~~avg~~  
avg.m

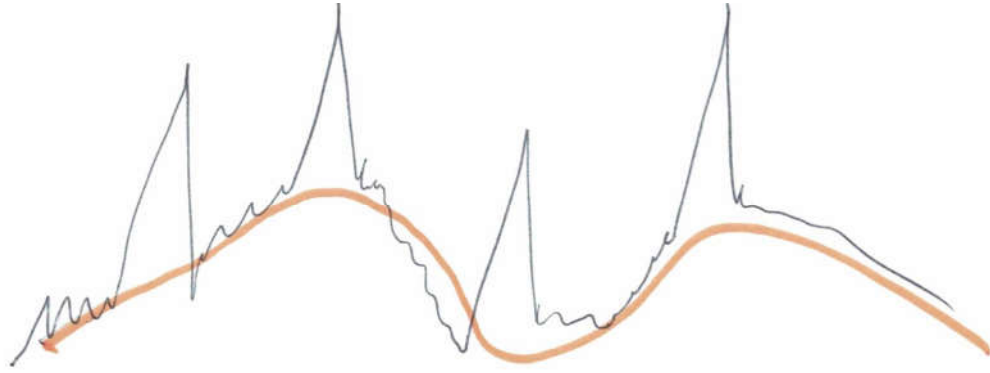
```
function avg_l = avg(v);
```

```
s = 0;
```

```
for i = 1: length(v)  
    s = s + v(i);
```

```
end  
end  
avg_l = s / length(v);
```





~~load~~ load 'noisy eq. ment'

$x = 1:4000$  OR  $\text{linspace}(1, 4000, 4000)$   
 $y$  ← 4000 points  
 $P = \text{polyfit}(x, y, \text{degree})$

$yy = \text{polyval}(P, x)$

$y_{\text{fit}} = y - yy$

$$y = \underline{a_n} x^n + \underline{a_{n-1}} x^{n-1} \dots \underline{a_0} x^0$$

HW 13  $\rightarrow$  HW 27

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