ECE 2409

Fall 2020

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Homework 4

```
clc;clear;close all
c=datetime;
fprintf('Last run was %s\n',c)
```

```
Last run was 16-Oct-2020 11:27:10
```

a)

```
x=-7:0.1:7;
y1=x.^2-2;
y2=2.*x+1;
plot(x,y1,'r','LineWidth',2)
hold on
plot(x,y2,'b','LineWidth',2);
```

b)

```
captiony1 = sprintf('y = x^2-2');
text(-6.5, 7, captiony1, 'FontSize', 16, 'Color', 'r');
captiony2 = sprintf('y = 2*x+1');
text(3.5, 6, captiony2, 'FontSize', 16, 'Color', 'b');
```

c)

```
ax = gca;
ax.XAxisLocation = 'origin';
ax.YAxisLocation = 'origin';
```

d)

```
grid on
axis('square')
```

e)

```
ylim([-5 9])
xlim([-7 7])
set(gca,'xtick',[-7:1:7],'ytick',[-9:1:9])
set(findobj(gcf,'type','axes'),'FontSize',12,'FontWeight','Bold', 'LineWidth', 2);
box off;
```

f)

```
d=abs(y1-y2);
[val idx]=sort(d);
xintercept1=x(idx(1));
yintercept1=2*xintercept1+1;
xintercept2=x(idx(2));
yintercept2=xintercept2^2-2;
hold on
```

g)

```
plot(xintercept1,yintercept1,'k*','LineWidth',8)
plot(xintercept2,yintercept2,'k*','LineWidth',8)
```

h)

```
intlabel1=sprintf('(%i, %i)',xintercept1,yintercept1);
text(-4.1, -1.5, intlabel1, 'FontSize', 16, 'Color', 'k');
intlabel2=sprintf('(%i, %i)',xintercept2,yintercept2);
text(3.4, 7, intlabel2, 'FontSize', 16, 'Color', 'k');
```

i)

```
h1=arrows(-4,0,2.9,270,[0.05,0.1,0.1,0],'FaceColor','k','LineWidth',2);
h2=arrows(4,0,2.9,90,[0.05,0.1,0.1,0],'FaceColor','k','LineWidth',2);
h3=arrows(0,6,2.9,0,[0.05,0.1,0.1,0],'FaceColor','k','LineWidth',2);
h4=arrows(0,-2,2.9,180,[0.05,0.1,0.1,0],'FaceColor','k','LineWidth',2);
```