1. (a) $x^2+6x-24=0$

$$x=\frac{-6\pm\sqrt{132}}{2}$$

$$x=\frac{-6\pm 2\sqrt{33}}{2}$$

$$x=-3\pm\sqrt{33}$$

(b) $2x^2+8x+11=0$

$$x=\frac{-8\pm\sqrt{-24}}{4}=\frac{-8\pm 2i\sqrt{6}}{4}$$

$$x=-2\pm\frac{1}{2}i\sqrt{6}.$$

(c) $-3(x-2)^2+1=13$

$-3(x-2)^2=12$

$(x-2)^2=-4$

$x-2=\pm 2i$

$x=2\pm 2i$

(d) $x^4+6x^3+14x^2+54x+45=0$

-1	1	6	14	54	45
		-1	-5	-9	-45
	1	5	9	45	0
-5		-5	0	-45	
	1	0	9	0	

So $x=-1,\ -5$, or $x^2+9=0$

$x^2=-9$

$x=\pm 3i$

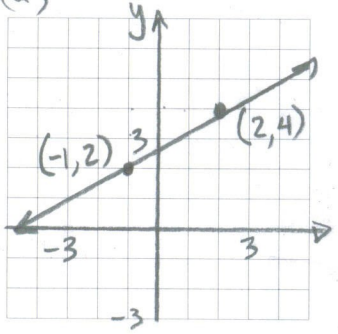
2. $-3x+2y=-9$

$x-4y=2$

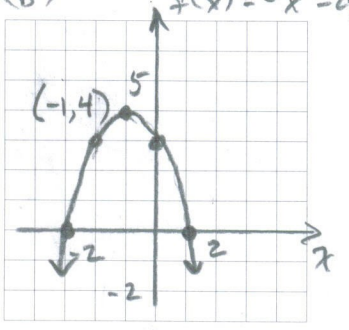
$$\begin{bmatrix}x\\y\end{bmatrix}=\frac{1}{10}\begin{bmatrix}-4&-2\\-1&-3\end{bmatrix}\begin{bmatrix}-9\\2\end{bmatrix}=\frac{1}{10}\begin{bmatrix}32\\3\end{bmatrix}=\begin{bmatrix}3.2\\.3\end{bmatrix}$$

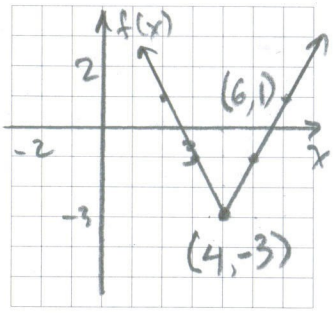
3.

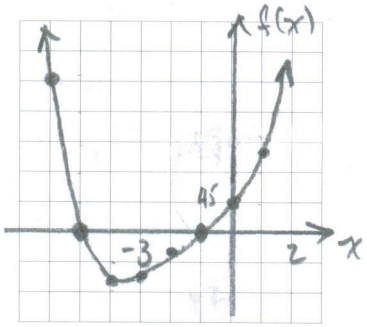
(a) $y-2=\frac{2}{3}(x+1)$



(b) $f(x)=-x^2-2x+3$





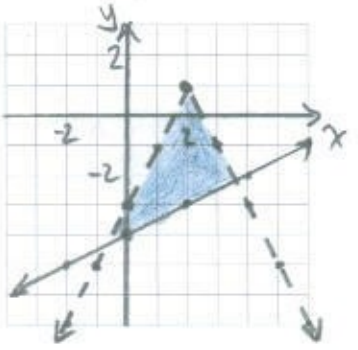


(c) $f(x)=2|x-4|-3$

(d) $f(x)=x^4+6x^3+14x^2+54x+45$

4. $y < -2|x-2|+1$

$y \geq \frac{1}{2}x - 4$



5.

$$x^3+x^2-5 \overline{)\,2x^4+2x^3+0x^2-10x-9}$$

$$-(2x^4+2x^3-10x)$$

$$-9$$

SINCE THERE IS A REMAINDER OF -9, (x^3+x^2-5) IS NOT A FACTOR.