	COLEGIO ITALICA Arguijo 5-7 SEVILLA 41003	MATEMATICAS 4º ESO EVAL: 1ª FECHA: 18-11-16	
NOMBRE			

a) $x^4-10x^3+5x^2+40x-36=0$

	1	−10	5	40	−36
1		1	−9	−4	36
	1	−9	−4	36	0

$(x-1)(x^3-9x^2-4x+36)=0$

	1	−9	−4	36
2		2	−14	−36
	1	−7	−18	0

$(x-1)(x-2)(x^2-7x-18)=0$

$x-1=0\rightarrow \boxed{x=1}$

$x-2=0\rightarrow \boxed{x=2}$

$$x^2-7x-18=0\rightarrow x=\frac{7\pm\sqrt{49+72}}{2}=\frac{7\pm 11}{2}=\begin{cases}\boxed{x=9}\\ \boxed{x=-2}\end{cases}$$

b) $\dfrac{x+1}{x^2-2x}+\dfrac{x-1}{x}=2$

$$\frac{x+1}{x(x-2)}+\frac{x-1}{x}=2\rightarrow \frac{x+1}{\cancel{x(x-2)}}+\frac{(x-1)(x-2)}{\cancel{x(x-2)}}=\frac{2x(x-2)}{\cancel{x(x-2)}}$$

$x+1+x^2-2x-x+2=2x^2-4x$

$x^2-2x-3=0$

$$x=\frac{2\pm\sqrt{4+12}}{2}=\frac{2\pm 4}{2}=\begin{cases}\boxed{x=3}\\ \boxed{x=-1}\end{cases}$$

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c) $\sqrt{13-x^2}+x=5$

$$\left(\sqrt{13-x^2}\right)^2=(5-x)^2\rightarrow 13-x^2=25+x^2-10x$$

$$2x^2-10x+12=0\rightarrow x^2-5x+6=0$$

$$x=\frac{5\pm\sqrt{25-24}}{2}=\frac{5\pm1}{2}=\begin{cases}\boxed{x=3} & \sqrt{13-9}+3=5\rightarrow 2+3=5 \quad v\\ \boxed{x=2} & \sqrt{13-4}+2=5\rightarrow 3+2=5 \quad v\end{cases}$$

d) $x^4-13x^2+36=0$

$$\boxed{x^2=y}\rightarrow y^2-13y+36=0$$

$$y=\frac{13\pm\sqrt{169-144}}{2}=\frac{13\pm5}{2}=\begin{cases}y=9\rightarrow \boxed{x=\pm3}\\ y=4\rightarrow \boxed{x=\pm2}\end{cases}$$

e) $\dfrac{x+7}{x+3}+\dfrac{x^2-3x+6}{x^2+2x-3}=1$

$$\frac{x+7}{x+3}+\frac{x^2-3x+6}{(x+3)(x-1)}=1\rightarrow \frac{(x+7)(x-1)}{\cancel{(x+3)(x-1)}}+\frac{x^2-3x+6}{\cancel{(x+3)(x-1)}}=\frac{(x+3)(x-1)}{\cancel{(x+3)(x-1)}}$$

$$x^2-x+7x-7+x^2-3x+6=x^2-x+3x-3$$

$$x^2+x+2=0$$

$$x=\frac{-1\pm\sqrt{1-8}}{2}\notin\mathbb{R}$$