2)

$$\lim\_{x\to 0}\frac{x^{2}-16}{3x^{2}-16x+16}= \left(\frac{-16}{16}\right)= -1$$

$$\lim\_{x\to 4}\frac{x^{2}-16}{3x^{2}-16x+16}= \left(\frac{0}{0}\right)=\lim\_{x\to 4}\frac{2x}{6x-16}= \frac{8}{8}=1$$

$$\lim\_{x\to \infty }\frac{x^{2}-16}{3x^{2}-16x+16}=\frac{\infty }{\infty }= \lim\_{x\to \infty }\frac{2x}{6x-16}=\frac{\infty }{\infty }=\lim\_{x\to \infty }\frac{2}{6}=\frac{1}{3}$$

1)

f(x)=$x^{3}-x+2$ f(0)=$0^{3}-0+2=2$ f(1)=$1^{3}-1+2=2$ f(-1)=$(-1)^{3}+1+2=4$

f(2)=$2^{3}-2+2=8$ f(a+1)=$(a+1)^{3}-\left(a+1\right)+2=2+(a+1)^{2}=2+\left(a+1\right)(a-1)$