17.4 1)

α) $y(x)=x^5 \Rightarrow y'(x)=5x^4 \Rightarrow y'(1)=5\cdot 1^4 \Rightarrow y'(1)=5$

β) $y=x^5 \overset{x=2\alpha+1}{\Rightarrow} y(\alpha)=(2\alpha+1)^5 \Rightarrow y'(\alpha)=5(2\alpha+1)^4\cdot 2 \Rightarrow y'(\alpha)=10(2\alpha+1)^4$

Ακόμη όταν $x=1 \overset{x=2\alpha+1}{\Rightarrow} 1=2\alpha+1 \Rightarrow 2\alpha=0 \Rightarrow \alpha=0$

Οπότε $y'(0)=10(2\cdot 0+1)^4 \Rightarrow y'(0)=10$

17.4 2)

α) $y(x)=x^3 \Rightarrow y'(x)=3x^2 \Rightarrow y'(4)=3\cdot 4^2 \Rightarrow y'(4)=48$

β) $y=x^3 \overset{x=3\alpha-2}{\Rightarrow} y(\alpha)=(3\alpha-2)^3 \Rightarrow y'(\alpha)=3(3\alpha-2)^2\cdot 3 \Rightarrow y'(\alpha)=9(3\alpha-2)^2$

Ακόμη όταν $x=4 \overset{x=3\alpha-2}{\Rightarrow} 4=3\alpha-2 \Rightarrow 3\alpha=6 \Rightarrow \alpha=2$

Οπότε $y'(2)=9(3\cdot 2-2)^2 \Rightarrow y'(2)=9\cdot 16 \Rightarrow y'(2)=144$

17.4 3)

α) $y(x)=x^6 \Rightarrow y'(x)=6x^5 \Rightarrow y'(1)=6\cdot 1^5 \Rightarrow y'(1)=6$

β) $y=x^6 \overset{x=4\alpha+9}{\Rightarrow} y(\alpha)=(4\alpha+9)^6 \Rightarrow y'(\alpha)=6(4\alpha+9)^5\cdot 4 \Rightarrow y'(\alpha)=24(4\alpha+9)^5$

Ακόμη όταν $x=1 \overset{x=4\alpha+9}{\Rightarrow} 1=4\alpha+9 \Rightarrow 4\alpha=-8 \Rightarrow \alpha=-2$

Οπότε $y'(-2)=24\left[4(-2)+9\right]^5 \Rightarrow y'(-2)=24\cdot 1^5 \Rightarrow y'(-2)=24$