## 1.1 1)

α) $f(2)=2^2=4$

β) $f(3)=3^2=9$

γ) $f(-1)=(-1)^2=1$

δ) $f(-2)=(-2)^2=4$

ε) $f(\alpha+1)=(\alpha+1)^2=\alpha^2+2\alpha+1$

στ) $f(2\alpha-3)=(2\alpha-3)^2=4\alpha^2-12\alpha+9$

ζ) $f(3\alpha+1)=(3\alpha+1)^2=9\alpha^2+6\alpha+1$

η) $f(2\alpha+3)=(2\alpha+3)^2=4\alpha^2+12\alpha+9$

θ) $f(6\alpha-1)=(6\alpha-1)^2=36\alpha^2-12\alpha+1$

## 1.1 2)

α) $f(2)=2\cdot2^2-3\cdot2+1=8-6+1=3$

β) $f(3)=2\cdot3^2-3\cdot3+1=18-9+1=10$

γ) $f(-1)=2\cdot(-1)^2-3\cdot(-1)+1=2+3+1=6$

δ) $f(-2)=2\cdot(-2)^2-3\cdot(-2)+1=8+6+1=15$

ε) $f(\alpha+1)=2\cdot(\alpha+1)^2-3\cdot(\alpha+1)+1=2\cdot\left(\alpha^2+2\alpha+1\right)-3\alpha-3+1=$

$2\alpha^2+4\alpha+2-3\alpha-3+1=2\alpha^2+\alpha$

στ) $f(2\alpha-3)=2\cdot(2\alpha-3)^2-3\cdot(2\alpha-3)+1=2\cdot\left(4\alpha^2-12\alpha+9\right)-6\alpha+9+1=$

$=8\alpha^2-24\alpha+18-6\alpha+9+1=8\alpha^2-30\alpha+28$

ζ) $f(3\alpha+1)=2\cdot(3\alpha+1)^2-3\cdot(3\alpha+1)+1=2\cdot\left(9\alpha^2+6\alpha+1\right)-9\alpha-3+1$

$=18\alpha^2+12\alpha+2-9\alpha-3+1=18\alpha^2+3\alpha$

## 1.1 3)

α) $f(3)=$ 5

β) $f(1)=$ 5

γ) $f(7)=$ 5

δ) $f(-4)=$ 5

ε) $f(0)=$ 5

## 1.1 4)

α) $f(1+h)=2(1+h)+1=2+2h+1=2h+3$

β) $f(1+h)-f(1) \overset{\substack{f(1+h)=2h+3 \\ f(1)=2\cdot1+1=3}}{=} 2h+3-3=2h$

γ) $\dfrac{f(1+h)-f(1)}{h} \overset{f(1+h)-f(1)=2h}{=} \dfrac{2h}{h}=2$

δ) $f(-2+h)=2(-2+h)+1=-4+2h+1=2h-3$

ε) $f(-2+h)-f(-2) \overset{\substack{f(-2+h)=2h-3 \\ f(-2)=2\cdot(-2)+1=-3}}{=} 2h-3-(-3)=2h-3+3=2h$

στ) $\dfrac{f(-2+h)-f(-2)}{h} \overset{f(-2+h)-f(-2)=2h}{=} \dfrac{2h}{h}=2$

## 1.1 5)

α) $f(1+h)=(1+h)^2-3(1+h)+1=1+2h+h^2-3-3h+1=h^2-h-1$

β) $f(1+h)-f(1) \overset{\substack{f(1+h)=h^2-h-1 \\ f(1)=1^2-3\cdot1+1=-1}}{=} h^2-h-1-(-1)=h^2-h-1+1=h^2-h$

γ) $\dfrac{f(1+h)-f(1)}{h} \overset{f(1+h)-f(1)=h^2-h}{=} \dfrac{h^2-h}{h}=\dfrac{\cancel{h}(h-1)}{\cancel{h}}=h-1$

δ) $f(-2+h)=(-2+h)^2-3(-2+h)+1=4-4h+h^2+6-3h+1=h^2-7h+11$

ε) $f(-2+h)-f(-2) \overset{\substack{f(-2+h)=h^2-7h+11 \\ f(1)=(-2)^2-3\cdot(-2)+1=4+6+1=11}}{=} h^2-7h+11-11=h^2-7h$

στ) $\dfrac{f(-2+h)-f(-2)}{h} \overset{f(-2+h)-f(-2)=h^2-h}{=} \dfrac{h^2-7h}{h}=\dfrac{\cancel{h}(h-7h)}{\cancel{h}}=h-7$