Functions Homework #4

1. If $f(1-x)=(1-x)f(x)+7$, then find $f(2)$. If $g(x)+2\,g\left(\frac{1}{1-x}\right)=x$, find $g(2)$

2. Given that $f(ax)=af(x)$ for all real numbers a and $f(\mathrm{m})=w$ find $f(\mathrm{p})$

3. Find an expression for $f(4x)$ in terms of $f(x)$ given that $f(x)=\frac{x}{x-1}$

4. If $g(x)=x^2+x$ and $f(g(x))=1-x^2$ when $x\neq 0$ find $f(-1)$

5. If $f(x)=x^2+\sqrt{2x+7}-1$ and $g(x)=\frac{1}{4-\sqrt{x}}$ what is the domain and range of $f\circ g$? What is the domain and range of $g\circ f$?

6. If $f\left(x^2-5x\right)=2x^4-20x^3+50x^2-11$ then $f\left(\sqrt[3]{x^2-2}\right)=$