Problem Set #3

10/01/04

1.2, # 12, 15, 18

1.3, # 1

Section 1.2

Problem 12.

(a) (i) $g(h-1)$

(ii) $g(h)-10$

(iii) $\frac{h}{2}$

(iv) $g(h+6)$

(v) $f(2)$

(vi) $f(4)-f(2)$

Problem 15.

(a) $g(0)=\frac{\sqrt{0^2+4}}{2}=1$

(b) $g(2)=\frac{\sqrt{2^2+4}}{2}=\frac{\sqrt{8}}{2}=\frac{2\sqrt{2}}{2}=\sqrt{2}$

(c) $g(\sqrt{5})=\frac{\sqrt{(\sqrt{5})^2+4}}{2}=\frac{\sqrt{5+4}}{2}=\frac{3}{2}$

(d) $g(\frac{1}{\sqrt{2}})=\frac{\sqrt{\frac{9}{2}}}{2}=\frac{3}{2\sqrt{2}}$

(e) $-g(3t)=-\frac{\sqrt{(3t)^2+4}}{2}=-\frac{\sqrt{9t^2+4}}{2}$

(f) $g(\sqrt{t-4})=\frac{\sqrt{(\sqrt{t-4})^2+4}}{2}=\frac{\sqrt{(t-4)+4}}{2}=\frac{\sqrt{t}}{2}$

Problem 18.

(a) 3

(b) 7

(c) $P(2W)=5-2\cdot(2W)=5-4W$

(d) $P(2W+1)=5-2(2W+1)=5-4W-2=3-4W$

(e) $P(W^2)=5-2W^2$

(f) $[P(W)]^2=(5-2W)^2=4W^2-20W+25$

(g) $P(W^2+1)=5-2(W^2+1)=5-2W^2-2=3-2W^2$

Section 1.3

Problem 1.

(a) (a) Function. Domain: $[-4,5]$. Range: $[-.2,.9]$.

(b) Not a function.

(c) Function. Domain: $(-3,7]$. Range: $[0,3]$.

(d) Function. Domain: $\{-3,-2,-1,0,1,2,3,4\}$. Range: $\{-1,0,1\}$.

(e) Not a function.

(f) Function. Domain: $\{0,1,2,3,4\}$. Range: $\{1\}$.

(g) Function. Domain: $(-\infty,\infty)$. Range: $[0,\infty)$.

(h) Function. Domain: $[-1,3)$. Range: $\{-1,0,1,2\}$.

(i) Function. Domain: $[-2,0)\cup(0,2]$. Range: $(-\infty,\infty)$.

(b) None of the functions above is 1–to–1.