Problem 2.

(a) Yes

(b) Yes.

(c) Yes.

(d) Yes.

(e) No. A state can have more than one representative in the House of Representatives.

(f) Yes.

(g) Yes.

(h) Yes.

Problem 3.

(a) Functions I, II

(b) domain for I: {a,b,c,d,e}, range for I: {c}
domain for II: {a,b,c,d,e}, range for II: {a,b,d,x,z}

Problem 12.

(a) (i) $g(h-1)$
     (ii) $g(h) - 10$
     (iii) $\frac{h}{2}$
     (iv) $g(h+6)$
     (v) $f(2)$
     (vi) $f(4) - f(2)$

(vii) $\frac{f(6)-f(3)}{2}$

(viii) $\frac{f(5)}{5}$.

(ix) $\frac{f(12)-f(6)}{6}$

(b) (i) The distance traveled two hours after reaching Gallup.

(ii) Half of the distance to Gallup.

(iii) The distance traveled during the first half of the trip from Flagstaff to Gallup.

(iv) The distance traveled two hours before reaching Gallup.

(v) 2 miles less than the distance to Gallup.

(vi) 2 miles more than the distance to Gallup.

(vii) The car's speed two hours after arriving at Gallup.

(viii) 2 miles per hour faster than the car's speed upon entering Gallup.

(ix) 2 miles per hour slower than the car's speed upon entering Gallup.

(x) Half of the car's speed upon entering Gallup.

(xi) Half of the car's speed one hour before entering Gallup.

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