2.7.4

- $(f+g)(x) = \sqrt{9-x^2} + \sqrt{x^2-4}$, $D_f = [-3,-2] \cup [2,3]$
- $(f-g)(x) = \sqrt{9-x^2} - \sqrt{x^2-4}$, $D_f = [-3,-2] \cup [2,3]$
- $(fg)(x) = \sqrt{9-x^2}\sqrt{x^2-4} = \sqrt{-x^4+13x^2-36}$, $D_f = [-3,-2] \cup [2,3]$
- $(f/g)(x) = \sqrt{\dfrac{9-x^2}{x^2-4}}$, $D_f = [-3,-2) \cup (2,3]$

2.7.37

- $(f \circ g)(x) = \dfrac{2x-1}{2x}$
- $(g \circ f)(x) = \dfrac{-1+x}{1+x}$
- $(f \circ f)(x) = \dfrac{x}{1+2x}$
- $(g \circ g)(x) = 4x-3$

2.7.57 (a) $g(x) = 60x$
(b) $f(x) = \pi x^2$
(c) $(f \circ g)(x) = 3600\pi x^2$

2.8.4 f is not one-to-one, as it fails the horizontal line test.

2.8.13 $(-1)^4 + 5 = 6 = (1)^4 + 5$, therefore it is not one-to-one.

2.8.41 $y = \sqrt{2+5x} \iff y^2 = 2+5x \iff 5x = y^2 - 2 \iff x = \dfrac{1}{5}y^2 - \dfrac{2}{5}$
Swap x and $y \Rightarrow y = \dfrac{1}{5}x^2 - \dfrac{2}{5}$.
$f^{-1}(x) = \dfrac{1}{5}x^2 - \dfrac{2}{5}$.