1.6. pg 61: 3, 7, 13-23 odd, 53, 60-61, 99-103 odd

3. $(f+g)(x) = x^2+6x+8$ D: $(-\infty, \infty)$
$(f-g)(x) = x^2+4x+4$ D: $(-\infty, \infty)$
$(f \cdot g)(x) = x^3+7x^2+16x+12$ D: $(-\infty, \infty)$
$(f/g)(x) = x+3$ D: $(-\infty, -2) \cup (-2, \infty)$

7. $(f+g)(x) = x^3+x+\frac{6}{x}$ D: $(-\infty, 0) \cup (0, \infty)$
$(f-g)(x) = -x^3-x+\frac{6}{x}$ D: $(-\infty, 0) \cup (0, \infty)$
$(f \circ g)(x) = 6x^2+6$ D: $(-\infty, 0) \cup (0, \infty)$
$(f/g)(x) = \frac{6}{x^4+x^2}$ D: $(-\infty, 0) \cup (0, \infty)$

13. a. $(f+g)(x) = 40x+550$, $x \geq 0$
b. $(f+g)(x)$ total budget
c. \$710, 4 weeks

15. $(f \circ g)(x) = 8x-19$
$(g \circ f)(x) = 8x-20$
$(f \cdot g)(6) = 29$

17. $(f \circ g)(x) = -x^4-2x^3-3x^2-2x+7$
$(g \circ f)(x) = x^4-17x^2+73$
$(f \circ g)(6) = -1841$

19. $(f \circ g)(x) = -x^6-2x^3+2$
$(g \circ f)(x) = -x^6+9x^4-27x^2+28$
$(f \circ g)(6) = -47,086$

21. $(f \circ g)(x) = \frac{1}{x^2-3}$; $x \neq \pm\sqrt{3}$

23. $(f \circ g)(x) = |x|$

53. $(f \circ g \circ h)(x) = x + 6\sqrt{x} + 11 \; ; \; x \geq 0$

60. $[1 \cdot 1](x) \approx 1.0323x$, $[1 \cdot 1 \cdot 1](x) \approx 1.0458x$
$[1 \cdot 1 \cdot 1 \cdot 1](x) \approx 1.0656x$

b. compounded intrest at 6m, 9m, 1y

61. $(f+g)(x) = 1$

99. rel max at $x = 0$
rel min at $x = 1$

101. abs min at $x = -0.75$

103. between $(-2, -1)$
between $(1, 2)$