

## Answers to assigned even-numbered problems in Chapter 4

### Section 4.1

4 Increasing on  $(-\infty, -1) \cup (1, \infty)$  and decreasing on  $(-1, 0) \cup (0, 1)$ .

36 Increasing on  $(-\infty, 0) \cup (2, \infty)$  and decreasing on  $(0, 1) \cup (1, 2)$ .

52 The function has a relative minimum at  $x = 2$  and  $f(2) = 2$ .

68 No relative extrema.

### Section 4.2

28 Concave Upward on  $(-\infty, 0) \cup (1, \infty)$  and Concave Downward on  $(0, 1)$ .

34 Concave Upward on  $(-\infty, -1)$  and Concave Downward on  $(-1, \infty)$ .

48 Inflection points are  $(0, 6)$  and  $(1, 5)$ .

### Section 4.3

4  $y = 0$  is a horizontal asymptote.

16  $g = \frac{1}{2}$  is a horizontal asymptote and  $t = \frac{1}{2}$  is a vertical asymptote.

34 (This problem asks to sketch a curve.)

54 (This problem asks to sketch a curve.)

### Section 4.4

2 The absolute maximum is  $\frac{1}{2}$  and the absolute minimum is  $-\frac{1}{2}$ .

12 It has an absolute minimum at  $x = 0$  and  $f(0) = 0$ .

46 To maximize its profits, 9400 copies should be produced each month.

### Section 4.5

6 The dimension of the box is  $\frac{5}{3} \times \frac{35}{3} \times \frac{14}{3}$ .

8 The dimension of the box is  $6 \times 6 \times 3$ .