

## 4.1 Even Answers

2. Max at  $x = c$  Min at  $x = b$ ; EVT applies
4. No max, no min; EVT does not apply
6. Max at  $x = a$ , min at  $x = c$ ; EVT does not apply
8. Minima at  $(-2, 0)$  and  $(2, 0)$ , max at  $(0, 2)$
10. Local max at  $(-3, 0)$ , local min at  $(2, 0)$ , max at  $(1, 2)$ , min at  $(0, -1)$
12. Max at  $(-1, e)$ , min at  $(1, \frac{1}{e})$
14. Max at  $(0, 1)$
16. Local min at  $(0, 1)$ , local max at  $(\pi, -1)$
18. Max at  $(3, 3^{\frac{3}{5}})$
20. Local Max at  $\left(-\sqrt{\frac{2}{3}}, 4 + \frac{4\sqrt{6}}{9}\right)$   
Local Min at  $\left(\sqrt{\frac{2}{3}}, 4 - \frac{4\sqrt{6}}{9}\right)$
22. No extreme values
24. Local Max at  $(0, -1)$
50. (a) Absolute Min at  $(10, 40)$   
(b) Smallest possible perimeter is 40 units  
(at  $x = 10, P(x) = 40$ )