4.2 Even Answers

2. (a) Absolute min at $\left(\dfrac{1}{2}, -\dfrac{49}{4}\right)$

   (b) Increasing on $\dfrac{1}{2} < x < \infty$

   (c) Decreasing on $-\infty < x < \dfrac{1}{2}$

4. (a) No extrema
   (b) Increasing on $-\infty < x < 0$
   (c) Decreasing on $0 < x < \infty$

6. (a) No extrema
   (b) Never increasing
   (c) Decreasing everywhere

8. (a) Local max at $(0, 9)$
      Absolute min at $\left(\pm\sqrt{5}, -16\right)$
   (b) Increasing on $-\sqrt{5} < x < 0$ and $\sqrt{5} < x < \infty$
   (c) Decreasing on $-\infty < x < -\sqrt{5}$ and
       $0 < x < \sqrt{5}$

10. (a) Absolute min at $\left(-2, -6(\sqrt[3]{2})\right)$
    (b) Increasing on $-2 < x < \infty$
    (c) Decreasing on $-\infty < x < -2$

12. (a) No extrema
    (b) Never increasing
    (c) Always decreasing

14. (a) No extrema
    (b) Increasing on $-\infty < x < \infty$
    (c) Never decreasing

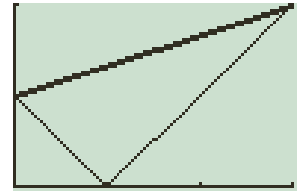16. $c = \dfrac{8}{27}$

18. $c = 1 + \dfrac{2}{\ln 3} \approx 2.820$

20. (a) $y = \dfrac{1}{\sqrt{2}}(x-1)$

    (b) $c = \dfrac{3}{2}$

22. (a) Not differentiable at $x = 1$

    (b) (**Secant line in bold**)
        No parallel tangent line to the
        graph of $f(x)$

    (c) No value for c