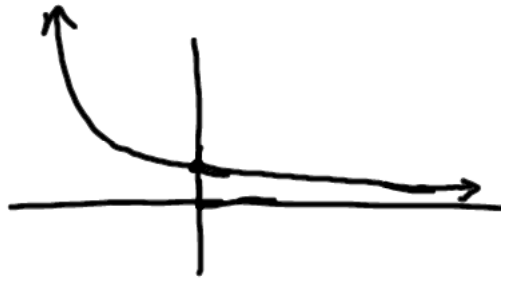
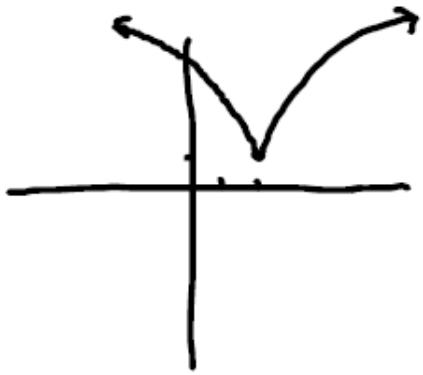
Answers to Week 11

- **<u>Section 5.1</u>**

  1. TRUE.





  2.

  3. Answers will vary

- **<u>Section 5.2</u>**

  1. .

     (a) max $= 3$, min $= 0$

     (b) max $= 2$, min $= \sqrt{3}$

     (c) max $= 4e^{-2}$, min $= 16e^{-4}$

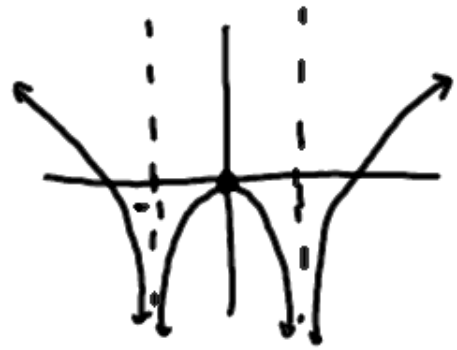
     (d) max $= \dfrac{1}{e}$, no min

  2. $x = 2$, $x = 3$.

- **<u>Section 5.3</u>**

  1. inc $(-\infty, 0) \cup (2, \infty)$; dec $(0, 2)$
     conc up $(1, \infty)$; conc down $(-\infty, 1)$.

  2. inc $(-1, 0) \cup (2, \infty)$; dec $(-\infty, -1) \cup (0, 1)$
     conc down $(-\infty, \infty)$



  3. inc $(0, 1)$; dec $(-\infty, 0) \cup (1, \infty)$
     conc up $\left(-\infty, \dfrac{2-\sqrt{2}}{2}\right) \cup \left(\dfrac{2+\sqrt{2}}{2}, \infty\right)$; conc down $\left(\dfrac{2-\sqrt{2}}{2}, \dfrac{2+\sqrt{2}}{2}\right)$

  4. $\left(-\dfrac{\pi}{2}, 2\pi\right)$, $\left(\dfrac{\pi}{2}, 2\pi\right)$