

Please let me know if you find any typos or errors in the answers below.

Section 3.1:

- 10, increase: $(-\infty, -2)$, $(0, \infty)$, decrease: $(-2, 0)$
- 12, increase: $(-\infty, -3)$, $(3, \infty)$, decrease: $(-3, 3)$
- 16, increase: $(-\infty, -1)$, $(0, 1)$, decrease: $(-1, 0)$, $(1, \infty)$
- 18, increase: $(-3, -1/2)$, decrease: $(-1/2, 2)$
- 24, Relative Maximum $(3, 432)$; Relative Minimum $(9, 0)$
- 26, Neither $(-1, 4)$; Relative Minimum $(0, 3)$
- 28, Neither $(-1, 0)$
- 30, Relative Maximum $(6, 6\sqrt{3})$
- 46, Relative Maximum: $x=2$; Relative Minimum: $x=0$
- 48, Relative Maximum: $x = -5$; Relative Minimum: $x = 0$; Neither: $x = 3.5$

Section 3.2:

- 6, Concave upward: $(-\infty, 0)$, $2, \infty$; Concave downward: $(0, 2)$
- 8, Concave upward: $2, \infty$; Concave downward: $(-\infty, -2)$
- 10, Concave upward: $4, \infty$; Concave downward: $(-\infty, 4)$
- 12, Concave upward: $5, \infty$; Concave downward: $(-\infty, 5)$
- 14, Relative Maximum: $(-2, 5)$; Relative Minimum: $(0, 1)$. Inflection point: $x = -1$. Concave upward: $(-1, \infty)$; Concave downward: $(-\infty, -1)$
- 16, No extremum. Inflection point: $x = 1$. Concave upward: $(1, \infty)$; Concave downward: $(-\infty, 1)$
- 20, Relative Minimum: $(2, 0)$. Concave upward: $(-\infty, \infty)$
- 28, Relative Maximum: $(0, 3)$; Relative Minimum: $(-1, 2)$, $(1, 2)$
- 30, Relative Maximum: $(-1, -2)$; Relative Minimum: $(1, 2)$
- 34, No Relative Maximum; Relative Minimum: $(0, 0)$
- 38, No Relative Maximum; Relative Minimum: $(9, 27)$
- 40, Concave upward: $(-3, 0)$, $(0, \infty)$; Concave downward: $(-\infty, -3)$, $(0, 1)$