Chapter 5
Page 287, Figure 5.20

The graph shows the function $f(x) = 2x^3 - 3x^2 - 72x + 15$.

The function decreases for $x < -3$ and $1 < x < 4$, and increases for $x > 4$. The critical points are $(-3, 150)$ and $(4, -193)$.
Page 291, Figure 5.27

The diagram illustrates the cost, revenue, and profit functions for a bicycle manufacturing company. The cost function is given by:

\[ C(x) = 10 + 5x + \frac{1}{60}x^3 \]

The revenue function is given by:

\[ R(x) = 90x - x^2 \]

The graph shows the maximum revenue, profit, and loss regions for different production levels. The production is measured in the number of bicycles per week.
Figure 5.36: Function graph for $f(x) = x^4 - 8x^3 + 18x^2$ with points (1, 11) and (3, 27).
Page 313, Figure 5.42

The graph shows the function $f(x) = 2x^3 - 3x^2 - 12x + 1$.

- Increasing: To the left of $x = -1$ and to the right of $x = 2$.
- Decreasing: Between $x = -1$ and $x = 2$.
- Concave downward: To the left of $x = -1$.
- Concave upward: To the right of $x = 2$.

Key points:
- $f(-1) = 8$ at $(1, 8)$
- $f(2) = -19$ at $(2, -19)$
- $(1/2, f(1/2)) = (1/2, -11/2)$
Page 315, Figure 5.44

The graph shows the function $f(x) = x + \frac{1}{x}$.

- The function is increasing on $(-\infty, 0)$ and $(1, \infty)$.
- The function is decreasing on $(0, 1)$.
- The graph is concave downward on $(-\infty, 0)$ and concave upward on $(1, \infty)$.

The dashed line $y = x$ is also shown for reference.
Page 317, Figure 5.45

The graph shows the function $f(x) = \frac{3x^2}{x^2 + 5}$.

- The graph has points $(-1.29, .75)$ and $(1.29, .75)$.
- The graph approaches the horizontal line $y = 3$ as $x$ approaches positive or negative infinity.