

1. Determine the intervals on which $f'(x)$ is positive and negative, assuming that **Figure 13** is the graph of $f(x)$.
2. Determine the intervals on which $f''(x)$ is positive and negative, assuming that **Figure 13** is the graph of $f(x)$.
3. Determine the intervals on which $f(x)$ is increasing or decreasing, assuming that **Figure 13** is the graph of $f'(x)$.
4. Determine the intervals on which $f(x)$ is concave up and concave down, assuming that **Figure 13** is the graph of $f'(x)$.

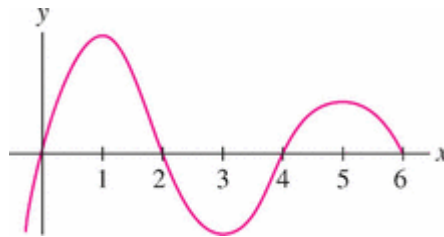


FIGURE 13

In 5–9,

- a. Find all x intercepts ($f(x) = 0$) and y intercepts ($f(0)$).
 - b. Identify where the function increases, decreases, has critical points and stationary points using the first derivative of the function. Identify these on a sign chart.
 - c. Identify where the function is concave up, concave down, and has inflection points using the second derivative of the function. Identify these on a sign chart.
 - d. Sketch a graph of the function including all information you found in a-c.
5. $y = -x^2 + 7x - 17$
 6. $y = x^3 - 12x^2$
 7. $y = 3x^4 + 8x^3 - 6x^2 - 24x$
 8. $y = \frac{1}{3}x^3 + \frac{3}{2}x^2 + 2x + 4$
 9. $y = x^4 + x^3$