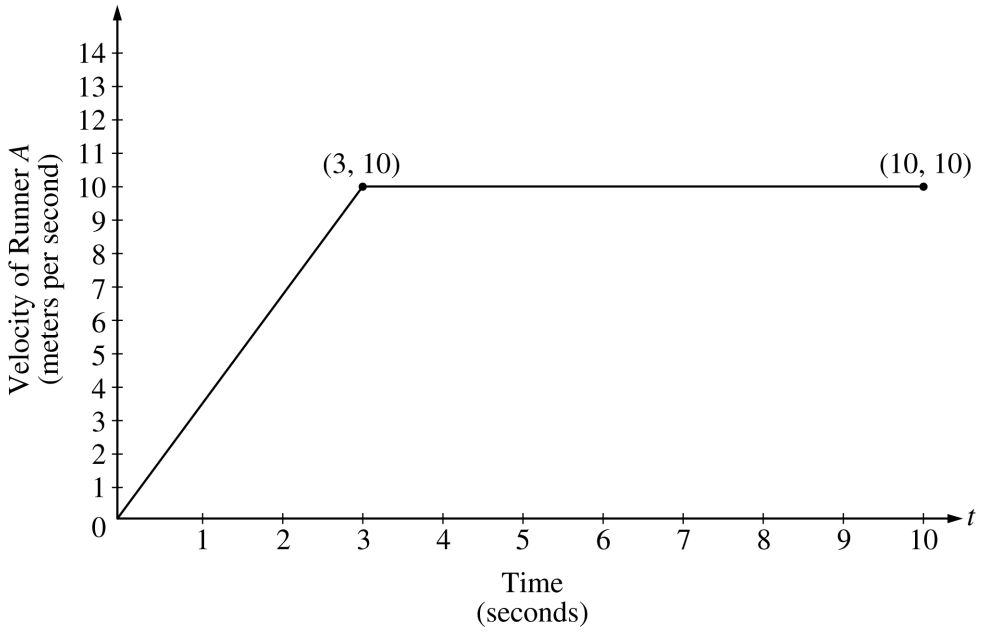
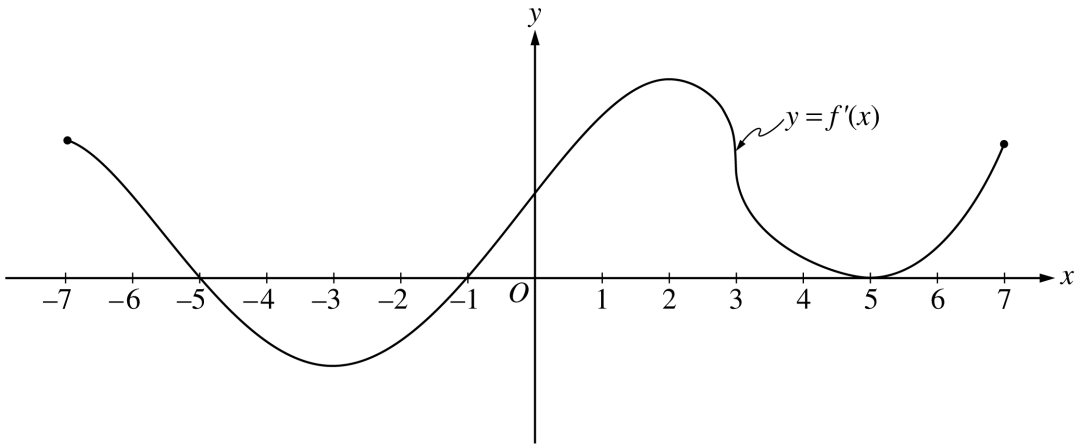


2. Two runners, A and B, run on a straight racetrack for $0 \le t \le 10$ seconds. The graph above, which consists of two line segments, shows the velocity, in meters per second, of Runner A. The velocity, in meters per second, of Runner B is given by the function v defined by $v(t) = \dfrac{24t}{2t + 3}$.

   (a) Find the velocity of Runner A and the velocity of Runner B at time $t = 2$ seconds. Indicate units of measure.

   (b) Find the acceleration of Runner A and the acceleration of Runner B at time $t = 2$ seconds. Indicate units of measure.

   (c) Find the total distance run by Runner A and the total distance run by Runner B over the time interval $0 \le t \le 10$ seconds. Indicate units of measure.



3. The figure above shows the graph of f', the derivative of the function f, for $-7 \le x \le 7$. The graph of f' has horizontal tangent lines at $x = -3$, $x = 2$, and $x = 5$, and a vertical tangent line at $x = 3$.

   (a) Find all values of x, for $-7 < x < 7$, at which f attains a relative minimum. Justify your answer.

   (b) Find all values of x, for $-7 < x < 7$, at which f attains a relative maximum. Justify your answer.

   (c) Find all values of x, for $-7 < x < 7$, at which $f''(x) < 0$.

   (d) At what value of x, for $-7 \le x \le 7$, does f attain its absolute maximum? Justify your answer.

END OF PART A OF SECTION II