7. (11 points) Over a jump site (a level field) on a particular day, parachutists know that the temperature $T = f(h)$ in degrees Celsius is given (approximately) as a function of the height h in meters above the ground. Interpret the following in practical terms, giving units.

(a) $f(1000) = 24$

At 1000 meters above the ground, the temperature is 24°C.

(b) $f^{-1}(18) = 2500$

When it is 18°C, we are 2500 meters above the ground.

(c) $f'(2000) = -.0044$

At 2000 meters, the temperature is decreasing at the rate of approximately .0044 °C per meter.

8. (4 points) Circle the answer that best describes the conditions on the first and second derivatives of the function P, where $P(t)$ is the price of gasoline at time t and the price is:

(a) rising "faster and faster"

(i) $P'(t) > 0$ and $P''(t) > 0$; (ii) $P'(t) > 0$ and $P''(t) < 0$;

(iii) $P'(t) < 0$ and $P''(t) > 0$; (iv) $P'(t) < 0$ and $P''(t) < 0$;

(b) "close to bottoming out"

(i) $P'(t) > 0$ and $P''(t) > 0$; (ii) $P'(t) > 0$ and $P''(t) < 0$;

(iii) $P'(t) < 0$ and $P''(t) > 0$; (iv) $P'(t) < 0$ and $P''(t) < 0$;