

## Free Response part 2 DUE Tomorrow Suggested Time Limit 15 Minutes

2. The temperature on New Year's Day in Hinterland was given by  $T(H) = -A - B \cos\left(\frac{\pi H}{12}\right)$ , where  $T$  is the temperature in degrees Fahrenheit and  $H$  is the number of hours from midnight ( $0 \leq H < 24$ ).
- (a) The initial temperature at midnight was  $-15^\circ F$ , and at noon of New Year's Day was  $5^\circ F$ . Find  $A$  and  $B$ .
  - (b) Find the average temperature for the first 10 hours.
  - (c) Use the Trapezoid Rule with 4 equal subdivisions to estimate  $\int_6^8 T(H) dH$ .
  - (d) Find an expression for the rate that the temperature is changing with respect to  $H$ .

Show work for part a)

Show work for part b)

Show work for part c)

Show work for part d)