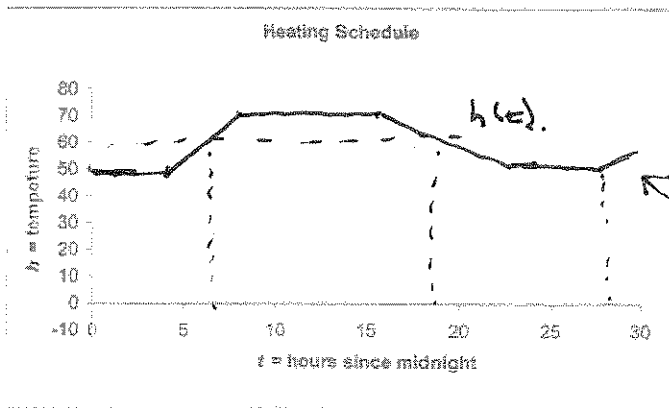


No work = no credit

1.) Consider the heating schedule for building 17 the temperature is a function of time.

Graph this function if:

- At midnight ( $t = 0$ ), the building temperature is 50F.
- This temperature is maintained until 4am.
- The temperature then warms up steadily so that by 8am the temperature is 70F.
- The 70F temperature is maintained until 4pm.
- The building is then gradually cools to 50F by 11pm.
- This temperature is maintained throughout the night.



the cycle begins again @ 4am the next day.

2.) Use the (proper) graph above to answer the following:

a.) If we consider  $h(t)$  the temperature as a function of time, interpret  $h(2)$ .

$h(2) = 50$ . The temp is 50°F @ 2am.

b.) What happened in  $h(t+2)$ ? Interpret in the context of the question?

The heating schedule begins two hours earlier.

6 ea.

c.) What happened in  $h(t)+3$ ? Interpret in the context of the question?

The building is kept 3°F warmer.

d.) Interpret  $h(t) = 60$  in the context of the problem.

The building is 60°F @ 7am & 6pm.

3.) The following problem relates to Ecco boots.

Ecco models their supply by the model:  $S: p = 2q + 80$

a.) What do  $p$  and  $q$  represent?

$p =$  price (\$) of a pair of boots

$q =$  quantity

b.) Find and interpret the  $p$ -intercept.

$p$  int = 80.

3 ea.

Ecco will supply 0 boots @ \$80/pair.

c.) Find and interpret the slope of the supply model.

For each additional pair supplied, the price must increase \$2.

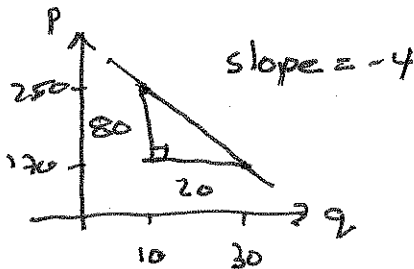
Ecco boots can sell 10 pairs of boots if the price is \$250/pair and 30 pairs if the price is \$170.

d.) Construct a demand model for boots.

$$D: p - 250 = -4(q - 10)$$

$$D: p = -4q + 40 + 250$$

$$D: p = -4q + 290$$



6 ea.

e.) Find and interpret the market equilibrium.

$$2q + 80 = -4q + 290$$

$$\Rightarrow 6q = \frac{210}{6}$$

$$\Rightarrow q = \frac{35}{1}$$

$\&$

$$p = \frac{210}{35} = 150$$

Market equilibrium is reached when 35 pairs are sold for \$150/pair.