

Bellwork Alg 2A Thursday, February 9, 2017

Round answers to the nearest hundredth.

1. A company wants to maximize their profit. The following equation models the company's profit as a function of the number of hours each week their plant is operating. $P(h) = -0.15h^2 + 37.8h + 4250$

- Find the company's maximum profit
- Find the number of hours each week the plant should be operating in order to achieve this maximum profit.

2. An object is shot into the air with an initial velocity of 184 ft/sec from the top of a 50 foot building. The following equation models the height(ft) of the object as a function of the amount of time(sec) after it was first shot into the air: $f(t) = -16t^2 + 184t + 50$

- Find the time it takes the object to reach its maximum height.

- Find the maximum height of the object.

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1. A company wants to maximize their profit. The following equation models the company's profit as a function of the number of hours each week their plant is operating. $P(h) = -0.15h^2 + 37.8h + 4250$

- Find the company's maximum profit
 $\text{max profit} = P(126) = 6631.4$
- Find the number of hours each week the plant should be operating in order to achieve this maximum profit.

LOS: $h = \frac{-37.8}{2(-0.15)} = 126$

126 hrs per week will maximize profit

2. An object is shot into the air with an initial velocity of 184 ft/sec from the top of a 50 foot building. The following equation models the height(ft) of the object as a function of the amount of time(sec) after it was first shot into the air: $h(t) = -16t^2 + 184t + 50$

- Find the time it takes the object to reach its maximum height.

x-coord of vertex

LOS: $t = \frac{-184}{2(-16)} = 5.75$

It will take 5.75 sec to reach max ht.

- Find the maximum height of the object.

y-coord of vertex

$\text{max ht} = h(5.75) = 579 \text{ ft}$

ANSWERS

