Algebra 2 Bellwork Friday, November 7, 2014

1. A company's costs are modeled by the following equation where e represents the number of employees and $C(e)$ are the costs as a function of the number of employees:
$C(e) = 1.2e^2 - 84e + 4355$

a) Find the number of employees that would minimize the company's costs

b) Find the minimum costs.

2. An object is shot into the air from the top of a 20 foot building. The following equation models the height of the object as a function of time:
$h(t) = -16t^2 + 108t + 20$

When will the object reach a height of 92 feet?

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ANSWERS

1. A company's costs are modeled by the following equation where e represents the number of employees and $C(e)$ are the costs as a function of the number of employees:
$C(e) = 1.2e^2 - 84e + 4355$

Vertex → (35, 2885) (e, c)

LOS: $\frac{84}{2(1.2)} = 35$

$1.2(35)^2 - 84(35) + 4355 = 2885$

a) Find the number of employees that would minimize the company's costs

35

b) Find the minimum costs.

$2885

2. An object is shot into the air from the top of a 20 foot building. The following equation models the height of the object as a function of time:
$h(t) = -16t^2 + 108t + 20$

When will the object reach a height of 92 feet?

3/4 sec & 6 sec

	t	-6
$4t$	$4t^2$	$-24t$
-3	$-3t$	$+18$

72, −24, −3, −27

$92 = -16t^2 + 108t + 20$

$16t^2 - 108t + 72 = 0$

$4(4t^2 - 27t + 18) = 0$

$4(4t - 3)(t - 6) = 0$

$t = 3/4, 6$