

Name: _____

Date: _____

For $h(t) = -16t^2 + vt + h_0$: the VERTEX gives max height and WHEN. Time at vertex $t = -b/(2a)$. Last two are challenge problems!

1. $h(t) = -16t^2 + 32t$. Find t at the vertex.

show your work

2. Same rocket: what is the max height?

show your work

3. $h(t) = -16t^2 + 80t$: time at max?
(Trainer echo - Jan 2026 Q31!)

show your work

4. Same: max height?

show your work

5. When does $h(t) = -16t^2 + 80t$ hit the ground ($h = 0$)?

show your work

6. A ball: $h(t) = -16t^2 + 48t + 4$.
Height at $t = 1$?

show your work

7. $h(t) = -16t^2 + 64t$. Max height and when?

show your work

8. From what height was $h(t) = -16t^2 + 80t + 6$ launched?

show your work

9. A rocket $h(t) = -16t^2 + 96t$. Find max height, time to it, and total air time. ★ CHALLENGE

show your work

10. Two balls: A is $h = -16t^2 + 64t$, B is $h = -16t^2 + 48t + 20$. Which reaches the higher peak? ★ CHALLENGE

show your work