

Name: _____

Date: _____

Arches, areas, and projectiles are quadratic. The VERTEX gives the max/min; the ZEROS give start/end. Last two are challenge problems.

1. $h(t) = -16t^2 + 64t$. Time at max height?

show your work

2. Same: max height?

show your work

3. Same: when does it land ($h = 0$)?

show your work

4. A garden area $A(x) = x(20 - x)$.
What x gives the max area?

show your work

5. Same garden: what is the max area?

show your work

6. Revenue $R(p) = p(100 - p)$. Price for max revenue?

show your work

7. $h(t) = -16t^2 + 48t + 4$. Starting height?

show your work

8. A ball: $h(t) = -16t^2 + 32t + 48$. When does it hit the ground?

show your work

9. A rectangular pen against a wall ★ CHALLENGE
uses 40 ft of fence on 3 sides: $A(x) = x(40 - 2x)$. Find x for max area and the max area.

show your work

10. A projectile $h(t) = -16t^2 + 80t + 6$ ★ CHALLENGE
(from Jan 2026 trainer style). Find the max height and total air time (nearest tenth).

show your work