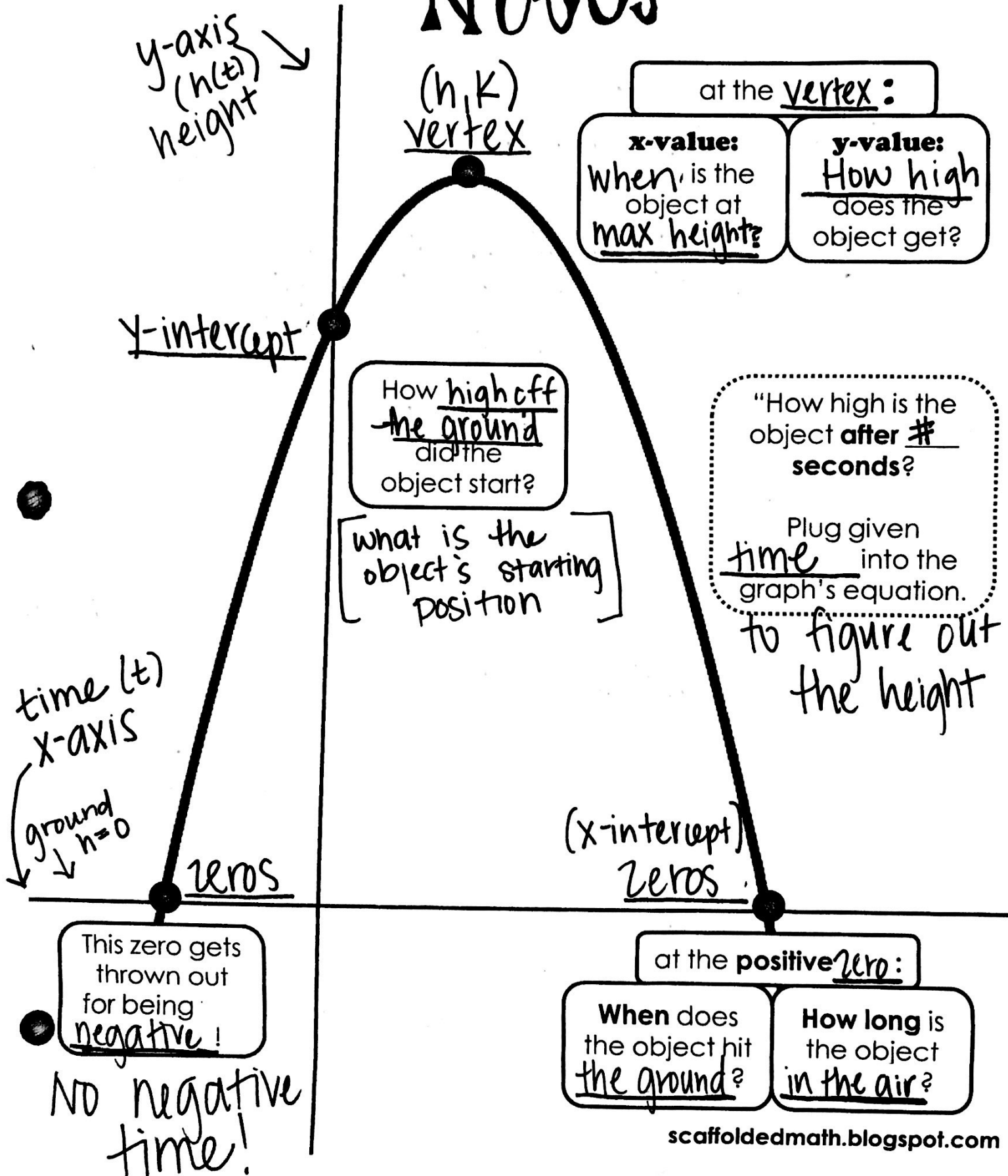


Quadratic Keywords

NOTES



Name: _____ Date: _____

Graphing Quadratic Equations

Wil E. Coyote is catapulting a boulder off a cliff to hit the road runner. Let t represent the number of seconds that the boulder catapults off the cliff and $h(t)$ denote the height of the boulder, in feet, above the base of the cliff. Ignoring air resistance, we can use the following formula to express the path of the boulder: $h(t) = -16t^2 + 24t + 160$

$t = \text{time (x-axis)}$ $h(t) = \text{height (y-axis)}$

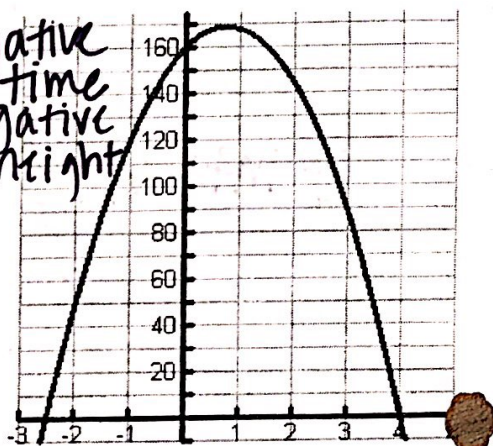
1. What does the x axis represent? time The y axis? height

2. What part of the graph is insignificant? Why?

- negative on x-axis b/c no negative time
- negative on y-axis b/c no negative height

3. What was the height of the boulder before it was launched? 160 feet

What special point on the graph is associated with this information? y-intercept



~~4.~~ If Wil E. Coyote simply pushed a boulder off the cliff, how would the graph look different?

5. How long will it take before the boulder reaches the bottom of the cliff? 4 sec.

What special point (Characteristic) on the graph is associated with this information? X-intercept

6. After how many seconds does the boulder change direction? 0.75 sec.

How high is the boulder when it changes direction? 170 feet

What is this significant point (characteristic) called on the graph? vertex

7. How high above the starting point does the boulder begin to change direction?
10 feet

8. If Wil E. Coyote changes his mind, how many seconds does he have to stop the boulder from going over the cliff? ≈ 1.5 seconds