

Graphing Quadratics
Vertex Form Application Problems (ALTERNATE)

Name _____

1. At the end of a snow tubing hill is a ramp built to send daring students through the air. The following function models the tube's flight:

$$h(d) = -0.1(d - 5)^2 + 3 \quad \text{where } d = \text{distance (ft) from the ramp; } h(d) = \text{distance (ft) above the ground}$$

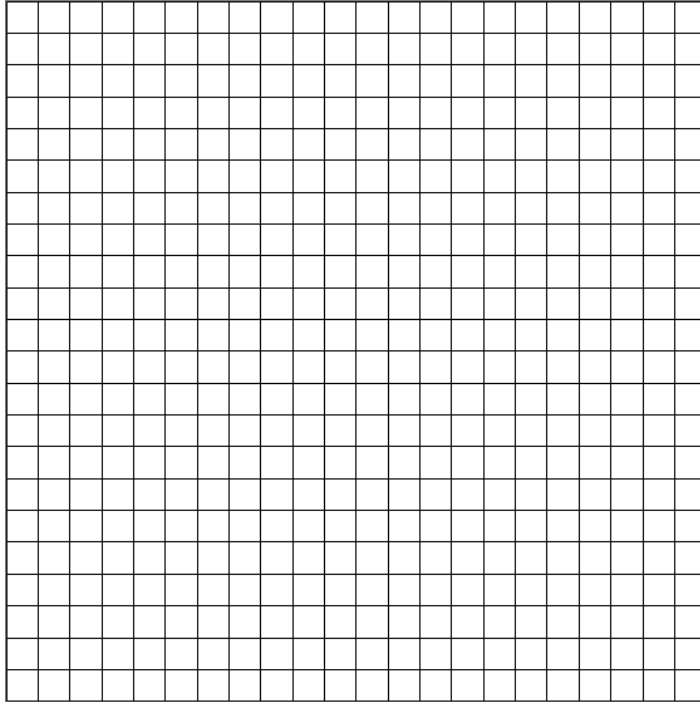
- a. Create a graph that represents this situation

opens _____

vertex _____ AOS _____

x-intercepts _____

y-intercept _____ pt. of refl _____



- b. How tall is the ramp at the end of the tubing hill? Where on the graph can this information be found?
- c. If there is a 10 ft. wide river that you are trying to jump over, would you clear the river? How short or how much clearance would you have? How can you tell by looking at the graph?

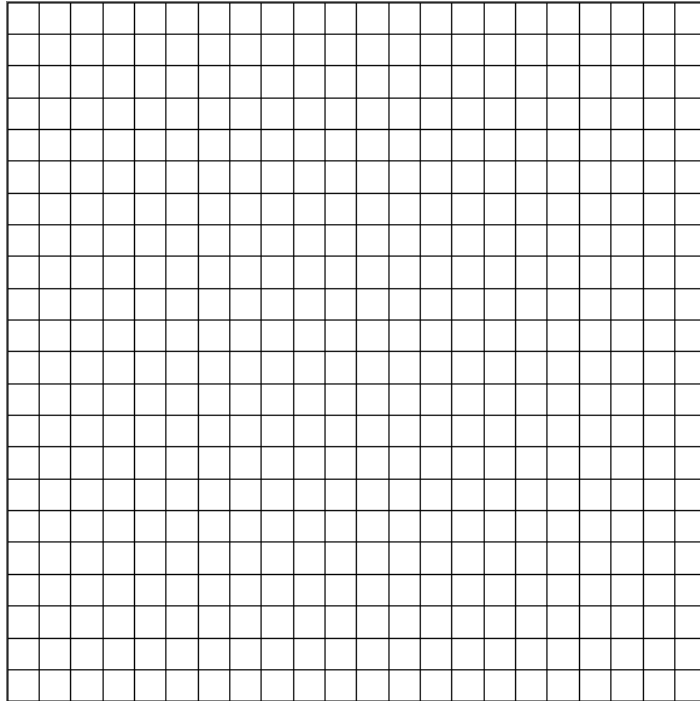
2. Planners of a school fund-raising carnival considered the following factors affecting profit prospects for a rental bungee jump attraction.

- the number of customers, the price per jump, insurance, delivery, setup, and supervision

After taking into consideration all of these factors, the planners determined that the profits for the bungee jump attraction could be found by using the following function rule:

$$f(x) = -(x - 48)^2 + 1900 \quad \text{where } x = \text{the cost per jump (in \$)} \text{ and } f(x) = \text{the total profit (in \$)}$$

- a. Create a graph that represents this situation



opens _____

vertex _____ AOS _____

x-intercepts _____

y-intercept _____ pt. of refl _____

- b. How much profit will this attraction make if each jump costs \$33? What other amount could be charged to make the same profit?
- c. What is the maximum profit for this attraction? At what cost would this maximum profit be achieved? Where does this occur on the graph?
- d. What is the breakeven point (when you are neither making nor losing money) for this attraction? Where does this occur on the graph?
- e. Interpret the meaning of the y-intercept in regards to the situation described above.