

Use your graphing calculator to model launching a projectile horizontally from an initial height.

Initial height = 100m

Initial Launch Speed = 10m/s

(let's also assume an initial  $x$  position of 5m for ease of seeing this on our graphing calculator screens)

Vertical drop

$$x_1 = 5$$

$$y_1 = -4.9T^2 + 100$$

horizontal

$$x_2 = 10T + 5$$

$$y_2 = 100$$

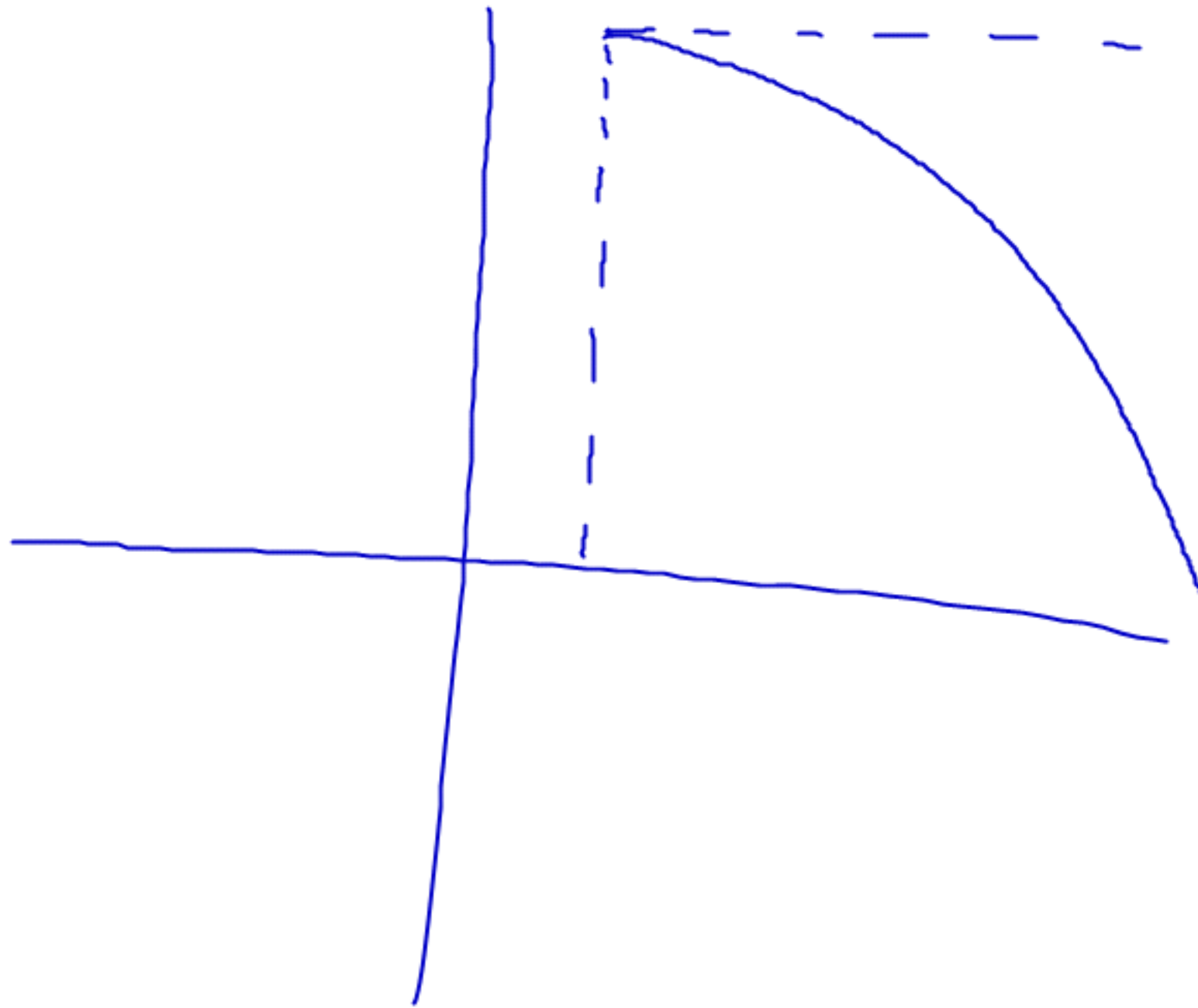
$$x_3 = 10T + 5$$

$$y_3 = -4.9T^2 + 100$$

$$\frac{1}{2}at^2 + v_i t + s$$
$$-4.9T^2 + 0T + 100$$

$$\frac{1}{2}at^2 + v_i t + s$$

$$0 + 10T + 2$$



A projectile is launched with an initial velocity of 35 m/s from a height of 75m. How far from the base of the cliff will it land and how long was it in the air?

