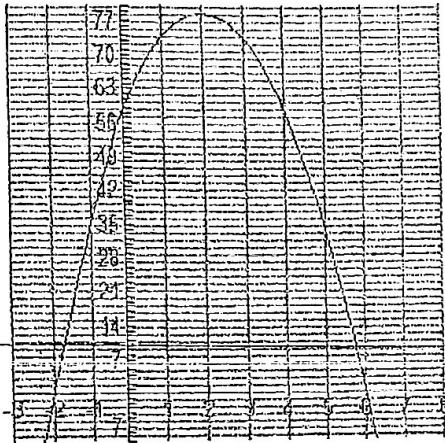


Try on your own:

3. An object is launched at 19.6 meters per second (m/s) from a 58.8-meter tall platform. The equation for the object's height h at time t seconds after launch is $h(t) = -4.9t^2 + 19.6t + 58.8$, where h is in meters. When does the object strike the ground?



$$0 = \frac{-4.9t^2 + 19.6t + 58.8}{-4.9}$$

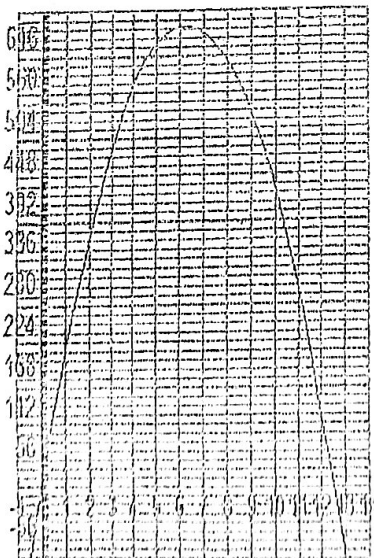
$$0 = t^2 - 4t - 12$$

$$0 = (t-6)(t+2)$$

$$t=6 \quad t=-2$$

6 seconds

4. A pistol is accidentally discharged vertically upward. The equation for the height of the bullet is $h(t) = -16t^2 + 200t + 3$. At what height was the bullet shot? What is the maximum height of the bullet? When will the bullet hit the ground?



$$h(t) = -16t^2 + 200t + 3$$

$$x = \frac{-b}{2a} = \frac{-200}{2(-16)} = \frac{-200}{-32}$$

$$x = 6.25$$

$$-16(6.25)^2 + 200(6.25) + 3$$

$$-625 + 1250 + 3$$

$$y = 628$$

$$0 = -16t^2 + 200t + 3$$

$$-200 \pm \sqrt{200^2 - 4(-16)(3)}$$

$$\frac{-200 \pm \sqrt{40,000 + 192}}{-32}$$

$$\frac{-200 \pm 200.48}{-32}$$

$$\frac{-200 - 200}{-32} = \frac{-400}{-32} \approx 12.5$$

$$\frac{-200 + 200}{-32} = \frac{0}{-32} = 0$$

- ① 3 feet
- ② 628 feet
- ③ 12.5