86. To find the "launch" velocity of the rock, we apply Eq. 2-11 to the maximum height (where the speed is momentarily zero)

$$v = v_0 - gt \quad \Longrightarrow \quad 0 = v_0 - (9.8)(2.5)$$

so that $v_0 = 24.5$ m/s (with $+y$ up). Now we use Eq. 2-15 to find the height of the tower (taking $y_0 = 0$ at the ground level)

$$y - y_0 = v_0 t + \frac{1}{2}at^2 \quad \Longrightarrow \quad y - 0 = (24.5)(1.5) - \frac{1}{2}(9.8)(1.5)^2 \quad .$$

Thus, we obtain $y = 26$ m.