

2.4 Quizlette – Free Fall (Red Elk)

Name _____

Ignore air friction and use the convention that **down is negative.** $g = 9.8 \text{ m/s}^2$

1. An air rocket is launched from the ground straight up, and on the way down is strikes a light tower that is 23.0 m tall with a downward velocity of 11.0 m/s. What was its initial upward velocity?

$X =$ $V_i =$ $V_f =$ $a =$ $t =$	Formula
	Show your steps

2. An air rocket is launched straight up at 31.0 m/s. What time elapses between the launch, and the point on the way down where it has a downward velocity of 17.0 m/s?

$X =$ $V_i =$ $V_f =$ $a =$ $t =$	Formula
	Show your steps

3. An air rocket is launched straight upwards at 26.0 m/s. What is its velocity at a time of 4.80 s?

$X =$ $V_i =$ $V_f =$ $a =$ $t =$	Formula
	Show your steps

4. An air rocket is launched straight up with a speed of 24.0 m/s and strikes a 18.0 m tall light tower on the way down. What is the velocity of impact with the light tower?

$X =$ $V_i =$ $V_f =$ $a =$ $t =$	Formula
	Show your steps

- | | | | |
|--------------|-----------|---------------|---------------|
| 1) +23.9 m/s | 2) 4.90 s | 3) -21.04 m/s | 4) -14.94 m/s |
|--------------|-----------|---------------|---------------|