

95. We take $+x$ in the direction of motion, so $v_0 = +24.6$ m/s and $a = -4.92$ m/s². We also take $x_0 = 0$.

(a) The time to come to a halt is found using Eq. 2-11:

$$0 = v_0 + at \implies t = -\frac{24.6}{-4.92} = 5.00 \text{ s} .$$

(b) Although several of the equations in Table 2-1 will yield the result, we choose Eq. 2-16 (since it does not depend on our answer to part (a)).

$$0 = v_0^2 + 2ax \implies x = -\frac{24.6^2}{2(-4.92)} = 61.5 \text{ m} .$$

(c) Using these results, we plot $v_0t + \frac{1}{2}at^2$ (the x graph, shown below, on the left) and $v_0 + at$ (the v graph, below right) over $0 \leq t \leq 5$ s, with SI units understood.

