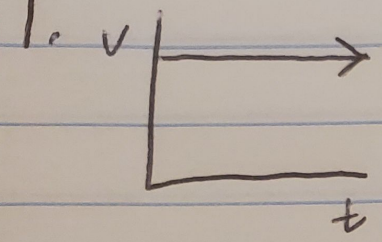
t(s)

6

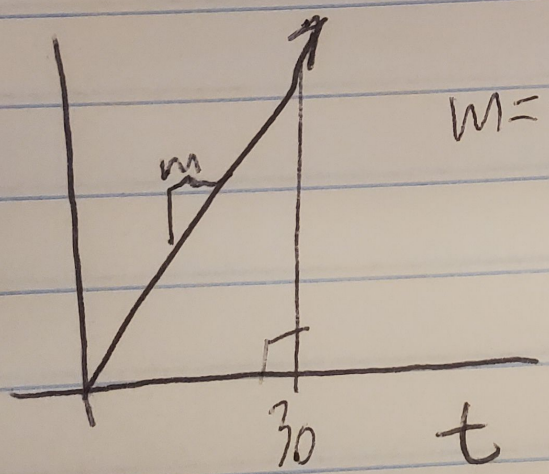
1. 

$V_f = 0 + 3(30) = 90$

2. 250 mi

$90^2 = 30^2 =$

3. yes 10 m/s for 10 seconds is 100 m
seconds cancel-out, $10 \times 10 \rightarrow 100$ m

4. 

$m = 3$

area under a curve

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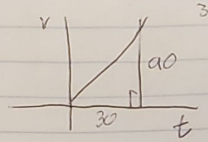
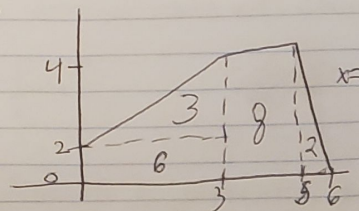
5. $30 \cdot 90 \cdot 0.5 = 1350$ m



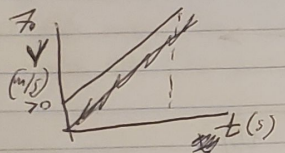
$v_f = v_i + at \rightarrow \frac{v_f - v_i}{a} = t$

6.

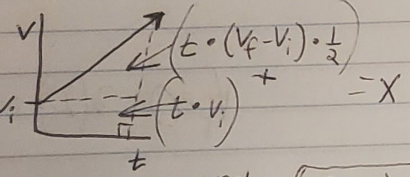


$x = 19$ m

8. $t = \frac{v_f - v_i}{a}$



9. $x = v_i t + \frac{1}{2} a t^2 \rightarrow y = ax^2 + bx$



10. $\frac{Bt^n}{t} \rightarrow \frac{Bnt^{n-1}}{t}$ $\left(\frac{1}{m+1}\right) t^{m+1}$

11. r_{10}

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12. $\Delta v = \int_0^t \dot{t}\, dt \qquad t^0 = \frac{a}{1} t^1 \rightarrow \int a t^m dt = \frac{a}{(m+1)} t^{(m+1)}$

$\Delta v = v_f - v_i = at \qquad v_f = v_i + at$

$v(t) = v_i + at$

13. $\Delta x = \int_0^t v\, dt = \int_0^t (v_i + at)\, dt = \int_0^t v_i\, dt + \int_0^t at\, dt$

$\Delta x = v_i t + \frac{a}{2} t^2$

14. $\Delta x = v_i t + \frac{1}{2} a t^2$ no, a is a constant in this context

15. $a = (8 - 0.1t)^2$

$\Delta v = \int a\, dt \qquad \Delta x = \int v_i\, dt$

$= \int_0^t 8 - 0.1t\, dt$

$\int_0^t 8 + \int_0^t -0.1t$

$\Delta v = 8t + \frac{-0.1}{2} t^2 \qquad \Delta x = \int 8t - 0.05^2\, dt$

$v = 8t - 0.05t^2 \qquad 8 - 0.1t = 80 = t$

$\frac{8}{2} t^2 + \frac{-0.05}{3} t^3$

$\frac{8}{2}(80)^2 + \frac{-0.05}{3}(80)^3 = \boxed{17066.67 \text{ m}}$