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Problem Summary: Index and Match velocity and time

Sketch:

$F_r \leftarrow$ [racecar] $\xrightarrow{T}$
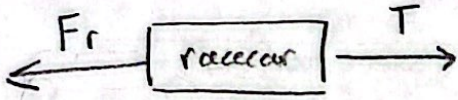
Known Variables/Input:

Weight = 7000N   thrust

F_R = 10,000N   time

t_i = 4.37 m/s

Unknown Variables/Output:

Velocity, acceleration

Other Variables/Assumptions:

assume velocity at $t = 0$ is 0

Algorithm (list of steps, flowchart, or pseudo code):

plug in known values

B cell

$a_x = \dfrac{Thrust - 10,000}{713.96}$

$\dfrac{7000}{9.81} = mass$

$V_2 = V_1 + (a \cdot \Delta t)$

$V_3 = V_2 + (a \cdot \Delta t)$

Implementation Notes (notes for specific steps/blocks of algorithm):

To find the row of where velocity = 4.37

=MATCH(G4, ROUND(D:D,2),0)

To index and find the time where the velocity is 4.37

=INDEX(A:A,C52))

Test Cases: weight of the car (W) 7000N.

constant   resistive force (Fr) 10,000N

time   to check velocity at t_i should be 4.37 m/s.

No literal values except in Assumptions, and Test Cases!