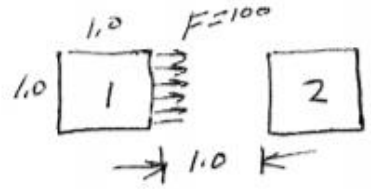
Two blocks 1X1 with a density of 1.0 would have a mass = 1.0 for each block

A force is applied to block 1 for 0.08 s
F = 100 with F = ma a = 100

The velocity of block 1 V = at = 8 after 0.08s
The distance traveled $X = 1/2 at^2 = 0.32$



The force is removed at 0.08 s now block 1 is a constant velocity of 8 and travels the 0.68 prior to striking block 2

t to a v=8, 0.08 sec
time to impact $t = x/v = 0.68/8 = 0.085$ sec

t_t at impact = 0.08s + 0.085s = 0.165 s
(acceleration distance) + (travel distance)

Conservation of Momentum at impact

$$V_2 = \left[\frac{m_2 - m_1}{m_1 + m_2}\right] V_o^{\text{block 2}} + \left(\frac{2m_1}{m_1 + m_2}\right) V_{\text{block 1}}$$

$$V_2 = \left[\frac{1-1}{1+1}\right] 0 + \left[\frac{2(1)}{2}\right] 8 = 8$$

$m_1 \Delta V_1 = m_2 \Delta V_2$; $V_1 = 0$ after impact

$t_{step} = .004$ intervals 100 $t_{total} = 0.4$ second
Contact occurs at step 41, constant acceleration step 20

Block 2 Check velocity

At step 47

$t = 47(.004) = 0.188$ s

$X = 0.17834$

at step 87

$t = 87(.004) = .348$

$X = 1.48304$

$$V_2 = \frac{dx}{dt} = \frac{1.3047}{0.16} = 8 \checkmark$$