

THIS IS THE SYSTEM ↑

WHAT IS THE TOTAL MOMENTUM " p "

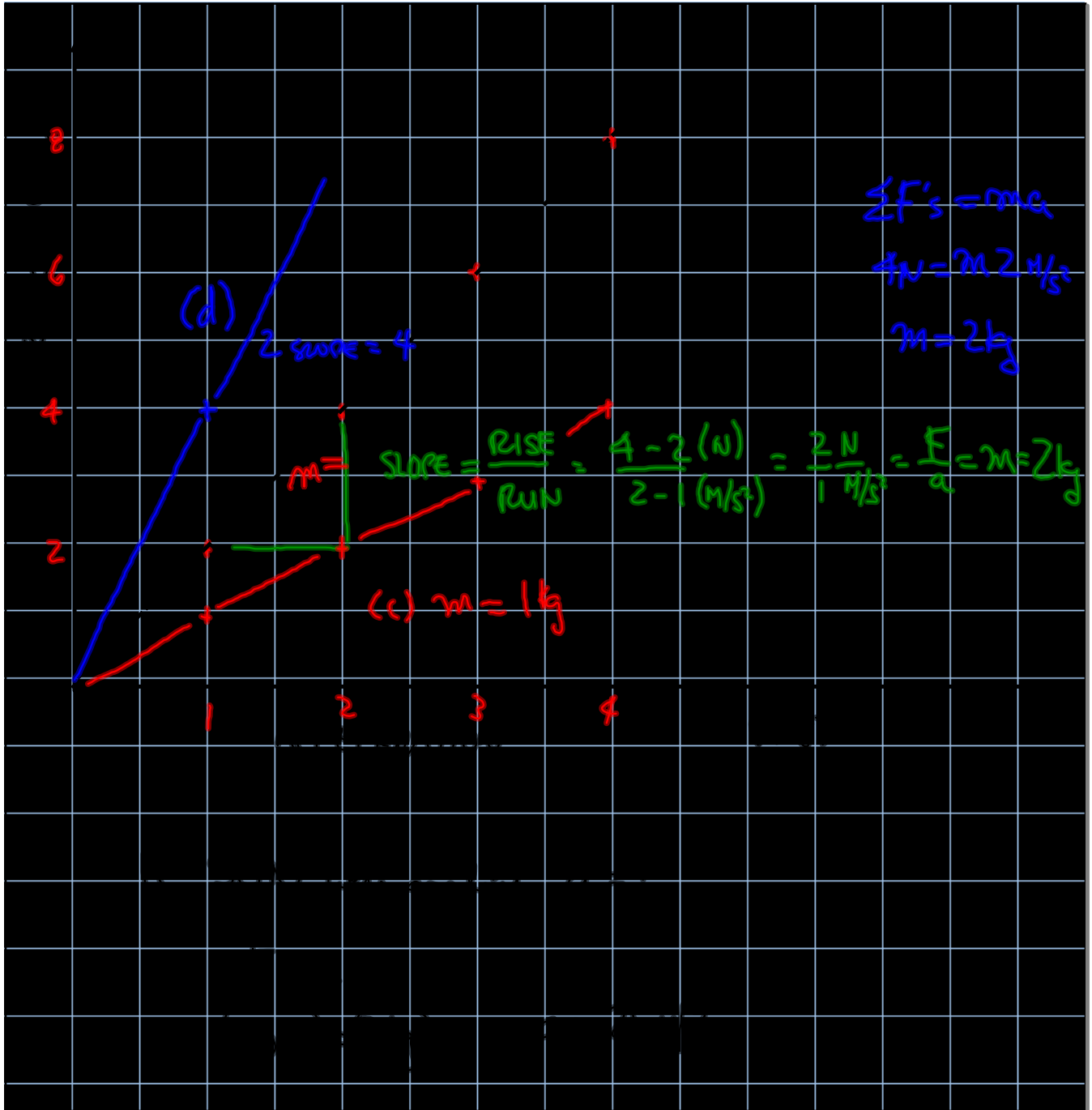
$$\begin{aligned} \sum p'_s &= p_1 + p_2 \\ &= -(5 \text{ kg} \times 10 \text{ m/s}) + 15 (\text{kg})(\text{m/s}) \\ &\quad \underbrace{\hspace{1.5cm}}_{-50 (\text{kg})\frac{\text{m}}{\text{s}}} \end{aligned}$$

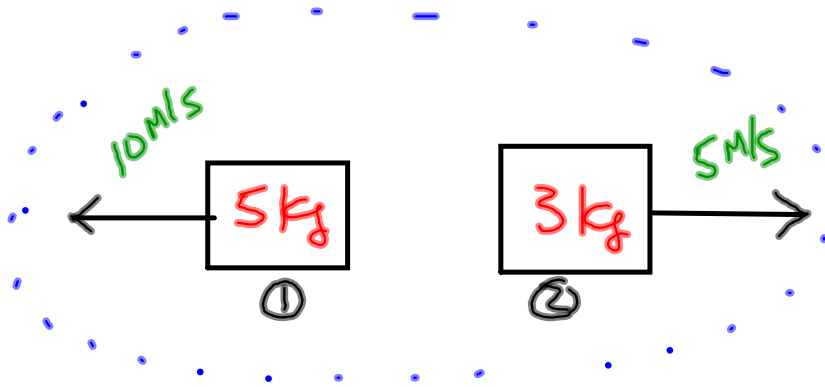
$$\sum p'_s = -35 \text{ kg}(\text{m/s})$$

KEY THING TO REMEMBER → p IS CONSERVED

$$p_{\text{Bc}} = p_{\text{Ac}}$$

IN THE ABSENCE OF ANY OUTSIDE FORCES





$$p = mv \quad \Sigma p = p_1 + p_2$$

$$-50 \text{ kg} \left(\frac{\text{m}}{\text{s}} \right) + 15 \text{ kg} \frac{\text{m}}{\text{s}}$$

$$= -35 \text{ kg} \frac{\text{m}}{\text{s}}$$

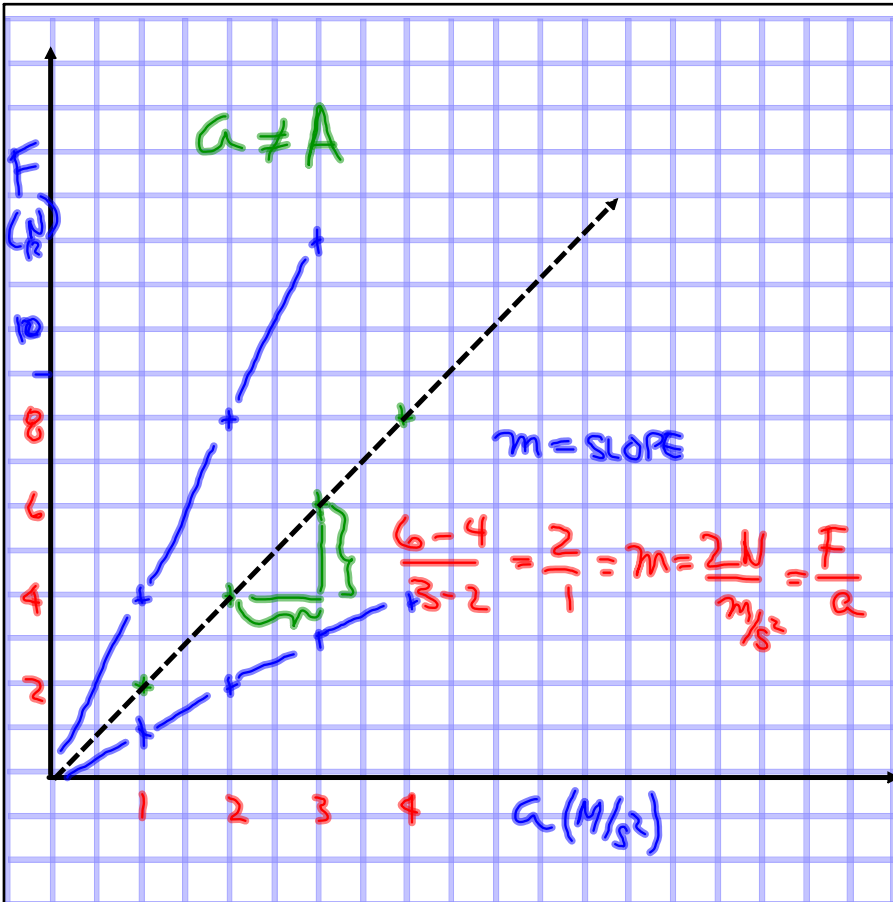
IN THE ABSENCE OF OUTSIDE FORCES

" p " IS CONSERVED.

$$p_{BC} = p_{AC}$$

BC → BEFORE COLLISION

AC → AFTER COLLISION



$s_0 = 2a$
 $a = 25 \frac{\text{m}}{\text{s}^2}$

$F = ma$

$m = \frac{F}{a} = 2 \text{ kg}$

$\frac{\text{m}}{\text{s}} \neq \frac{\text{m}}{\text{s}^2}$