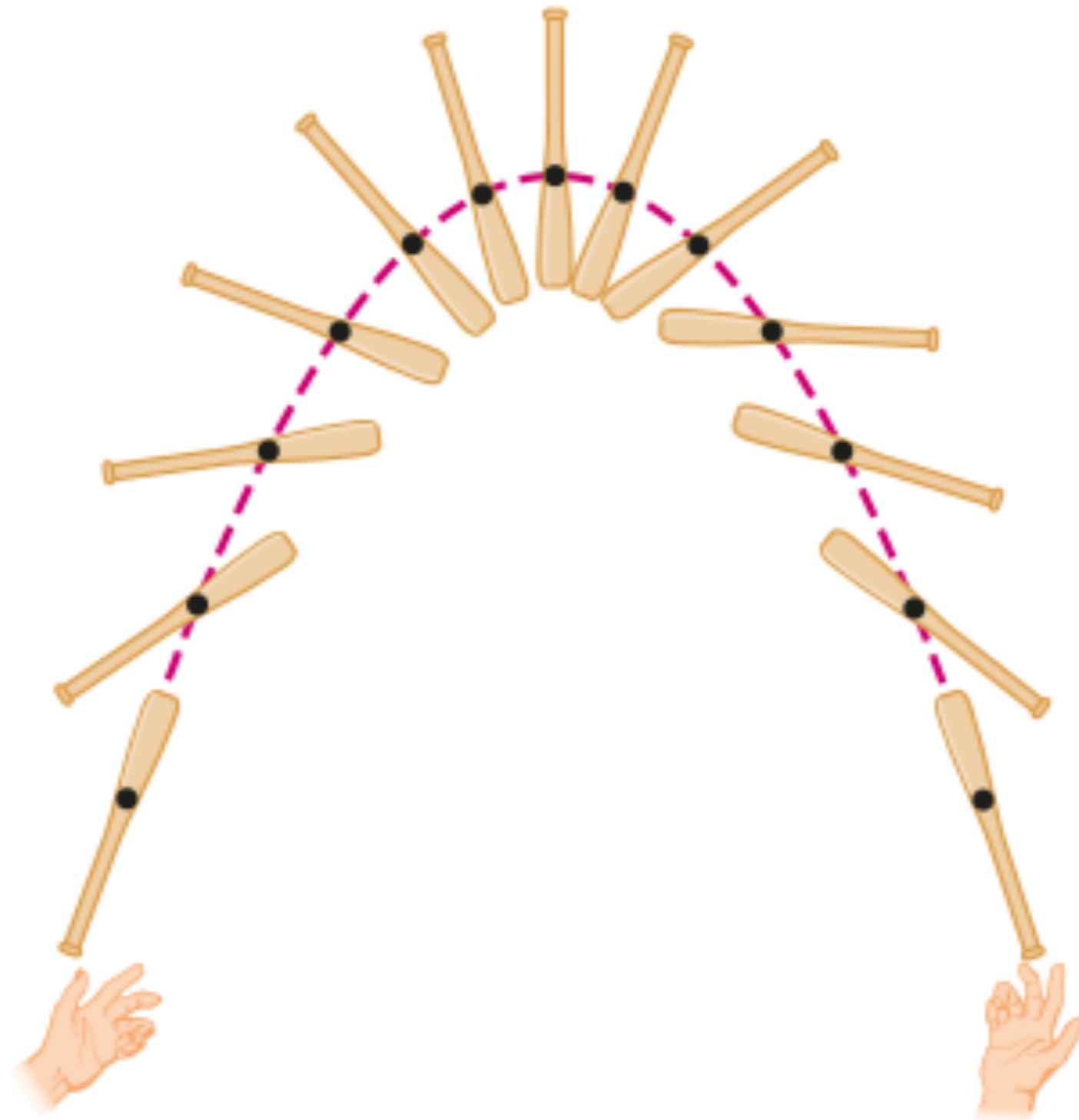




Richard Megna/Fundamental Photographs.

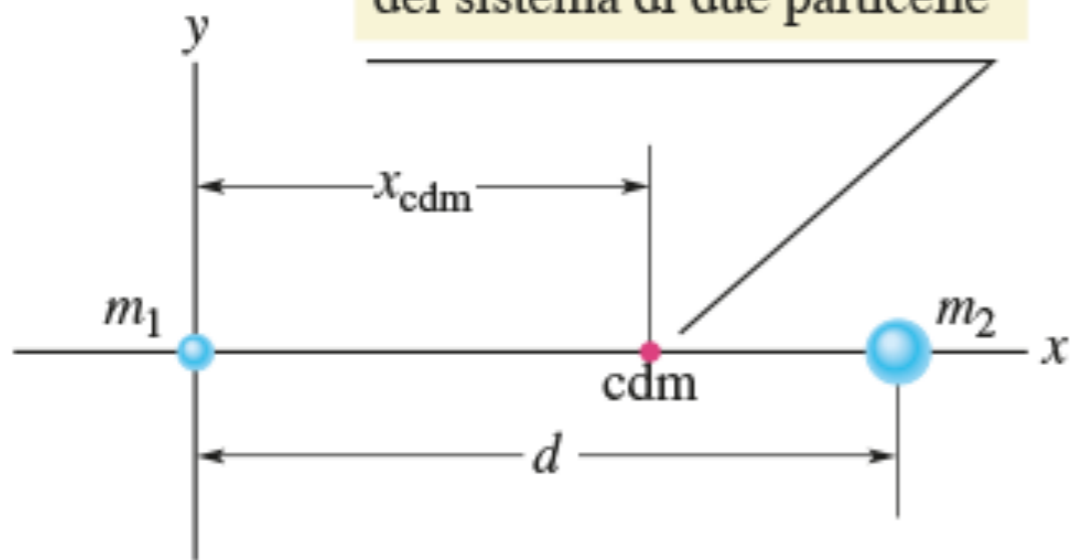
(a)



(b)

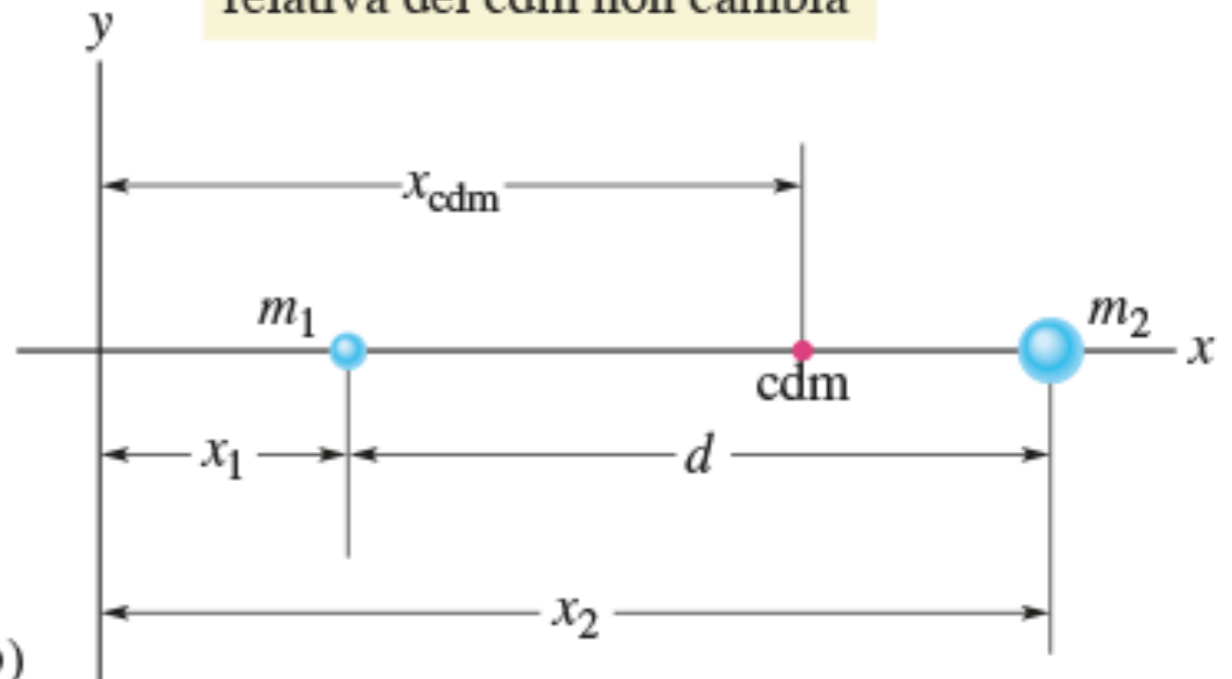


Questo è il centro di massa del sistema di due particelle

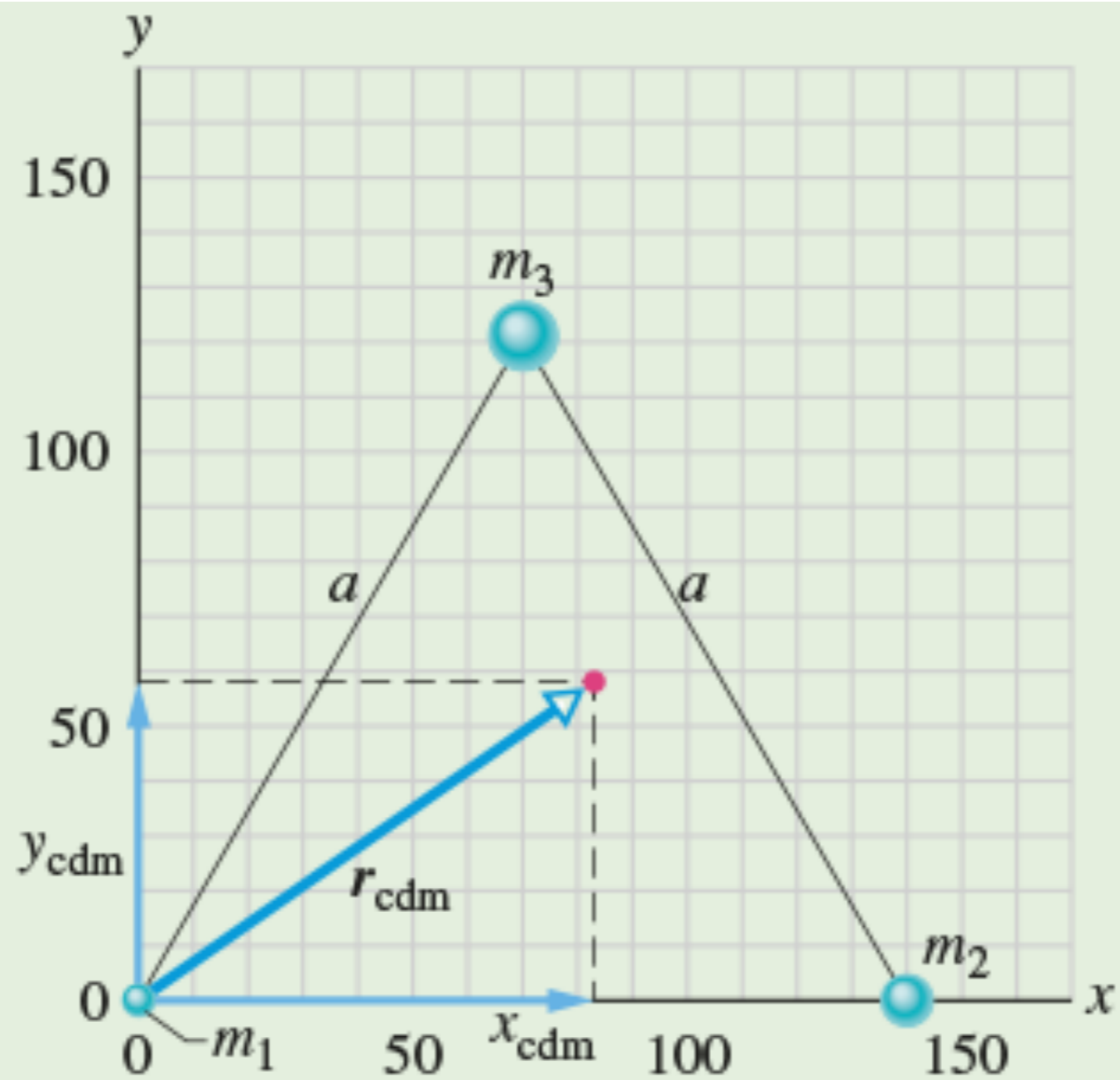


(a)

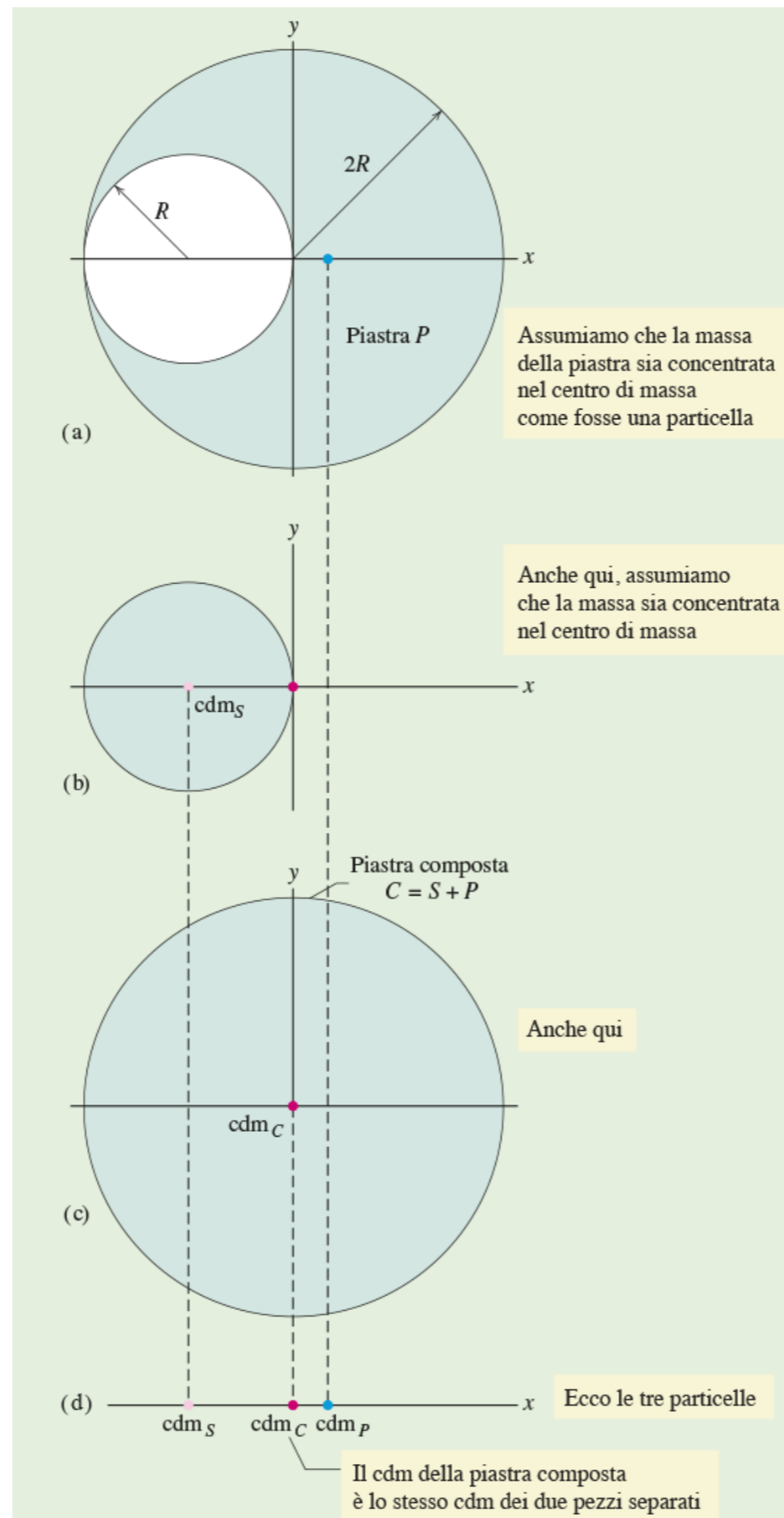
Traslando l'asse la posizione relativa del cdm non cambia

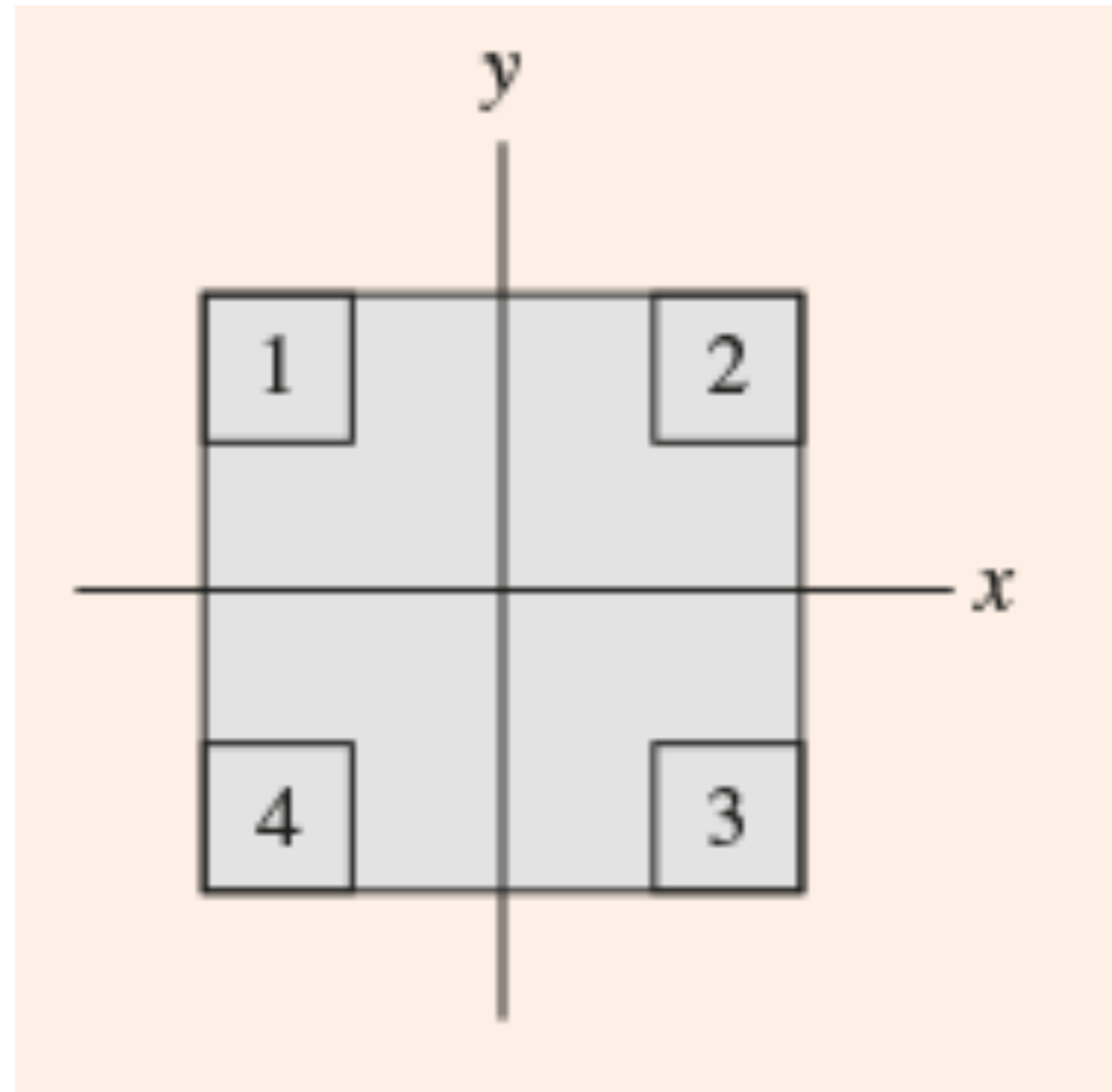


(b)



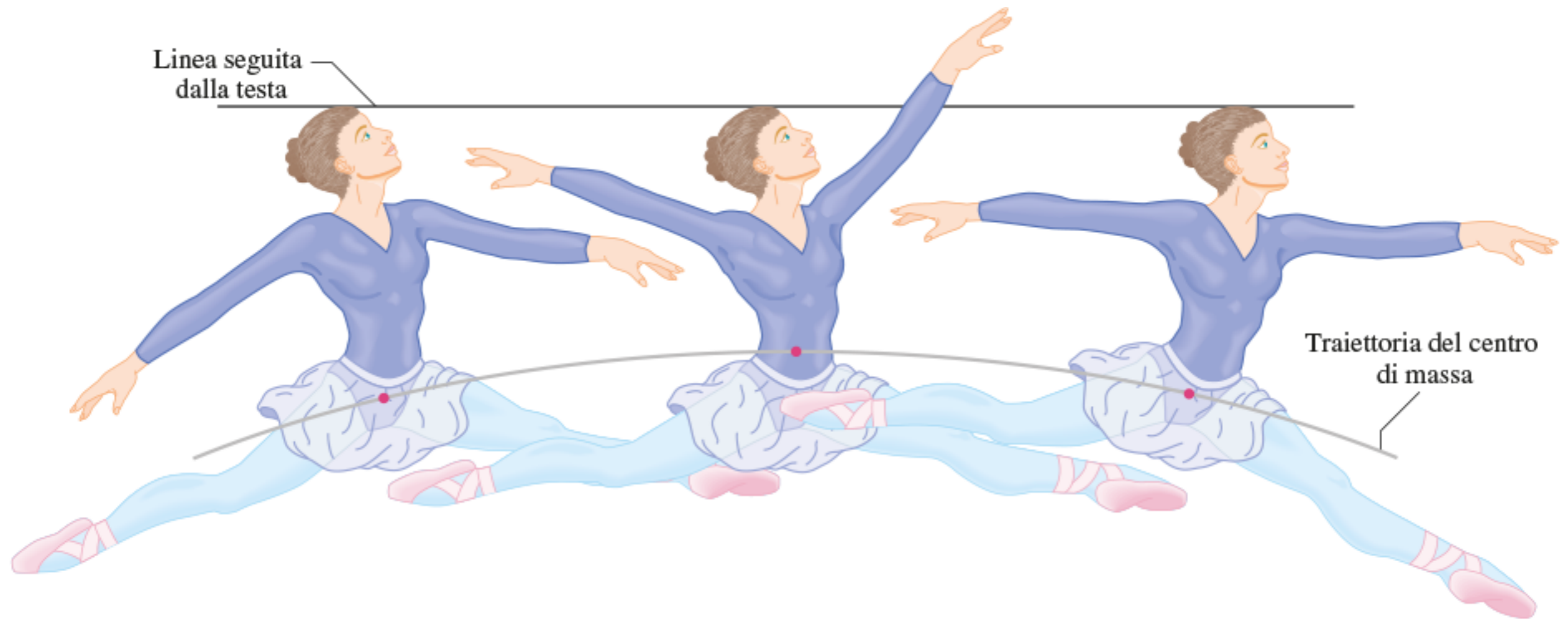
Questo è il vettore posizione  $r_{\text{cdm}}$  del centro di massa (rivolto dall'origine al cdm)





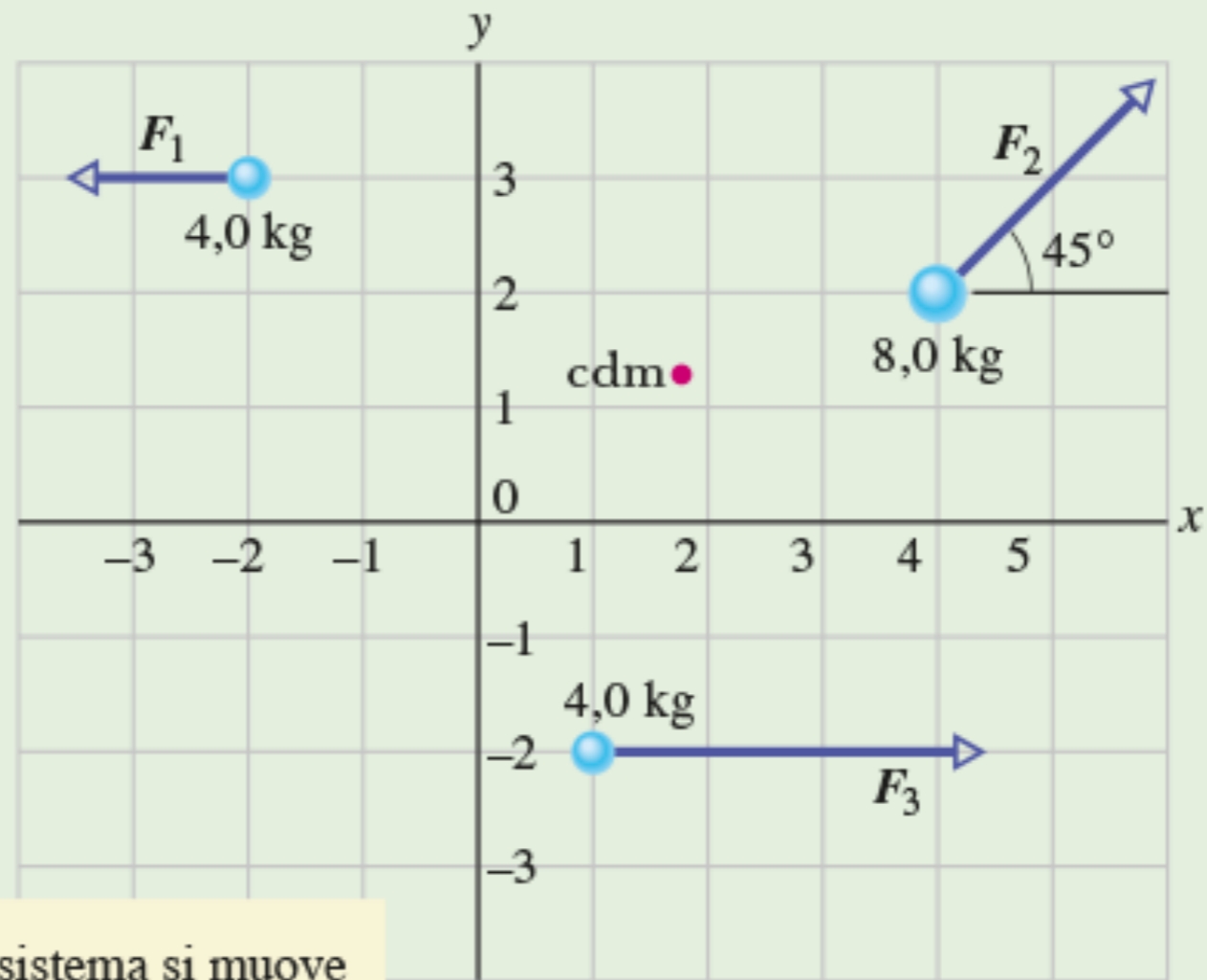
Le forze interne dovute all'esplosione non mutano il percorso del cdm





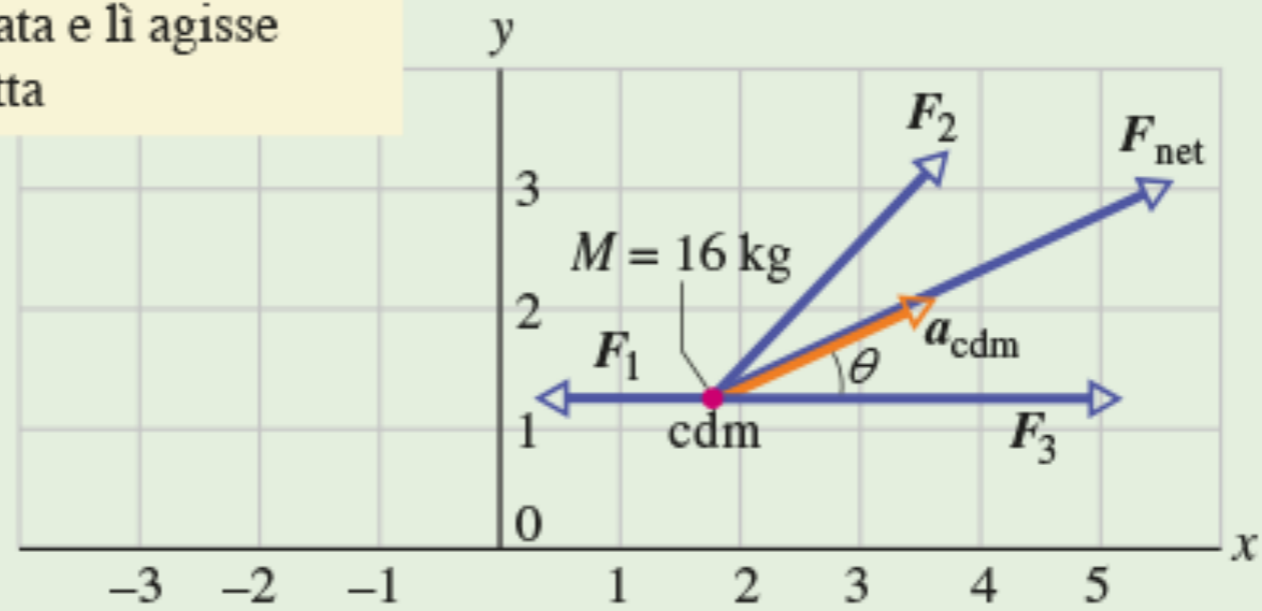
**Figura 9.6** Il *grand jeté*. (Adattato da Laws K., *The Physics of Dance*, Schirmer Books 1984.)





(a)

Il cdm del sistema si muove come se tutta la massa fosse lì concentrata e lì agisse la forza netta



(b)

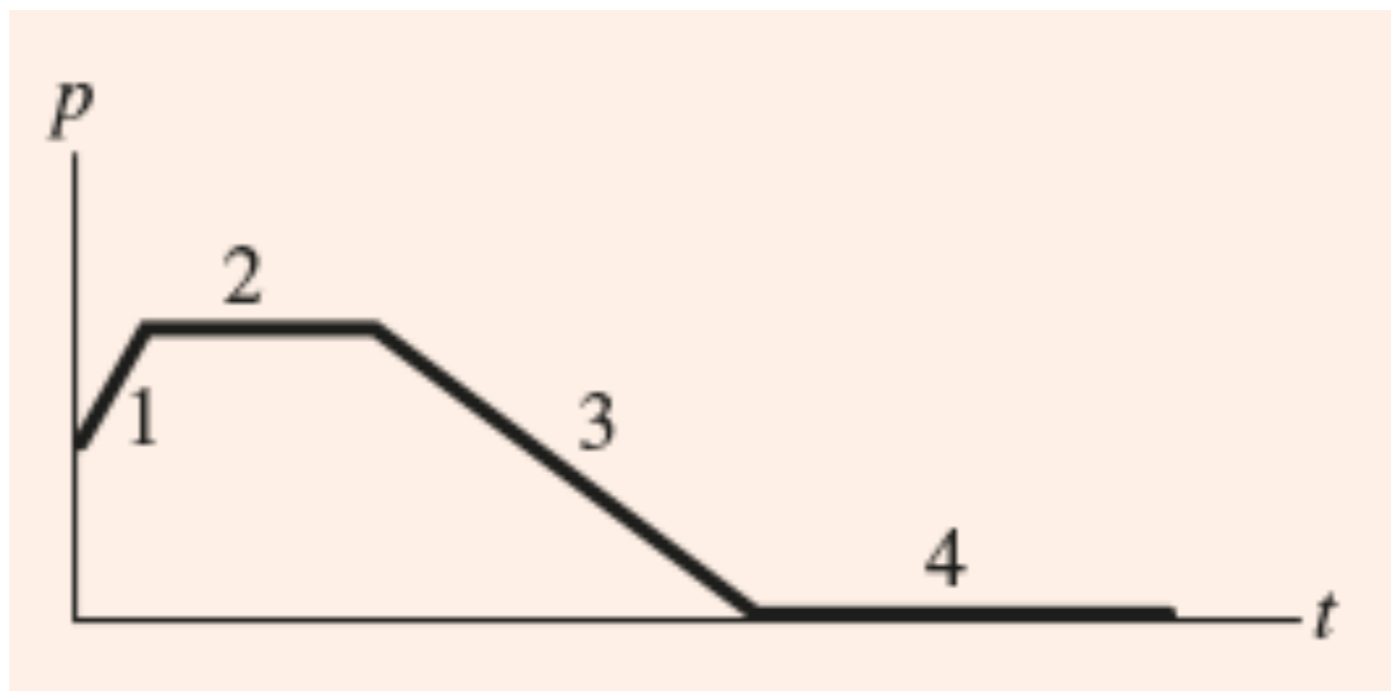
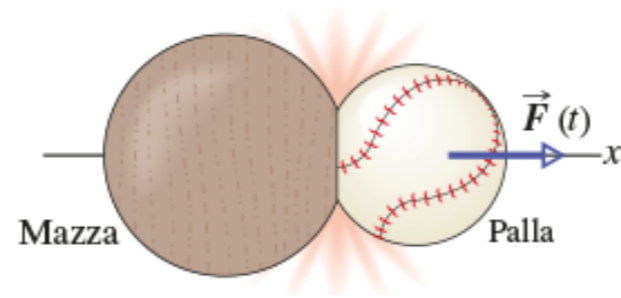
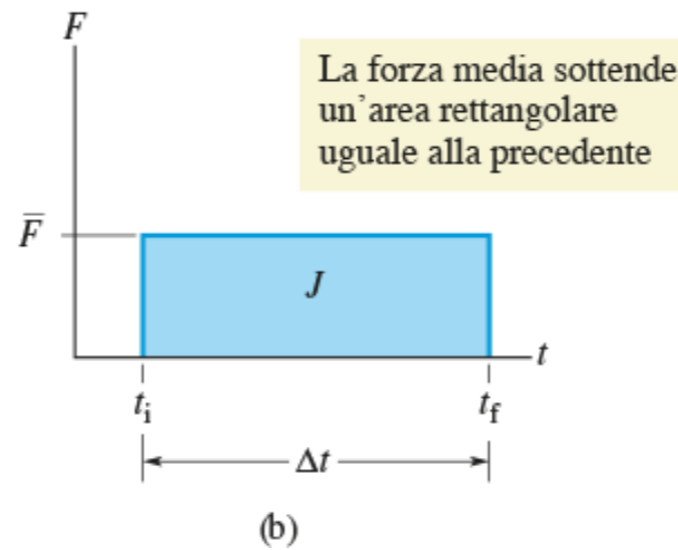
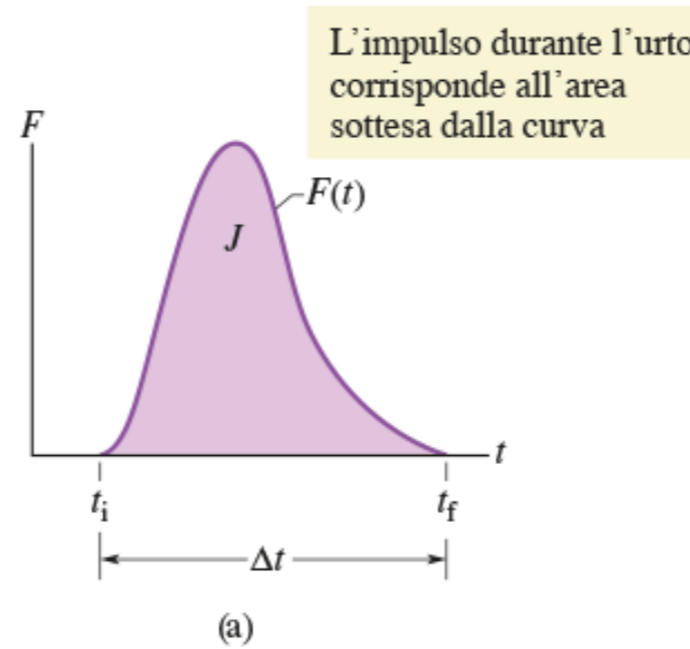


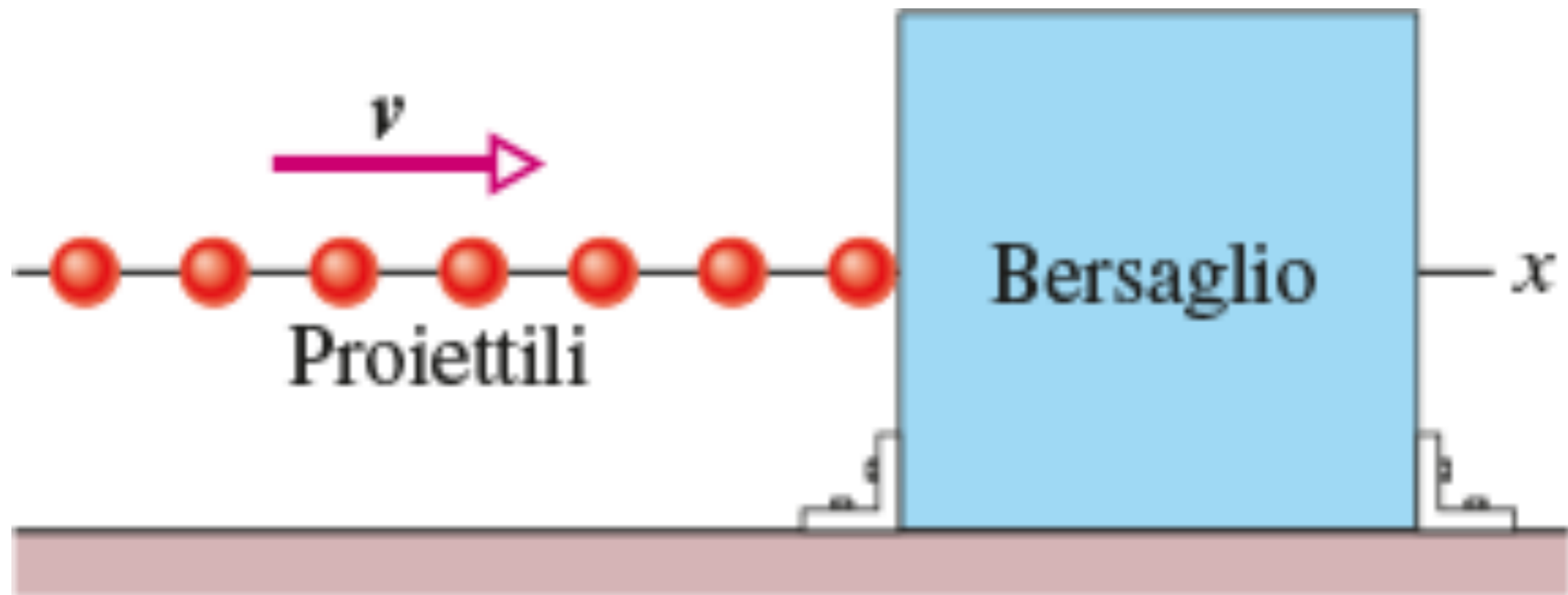


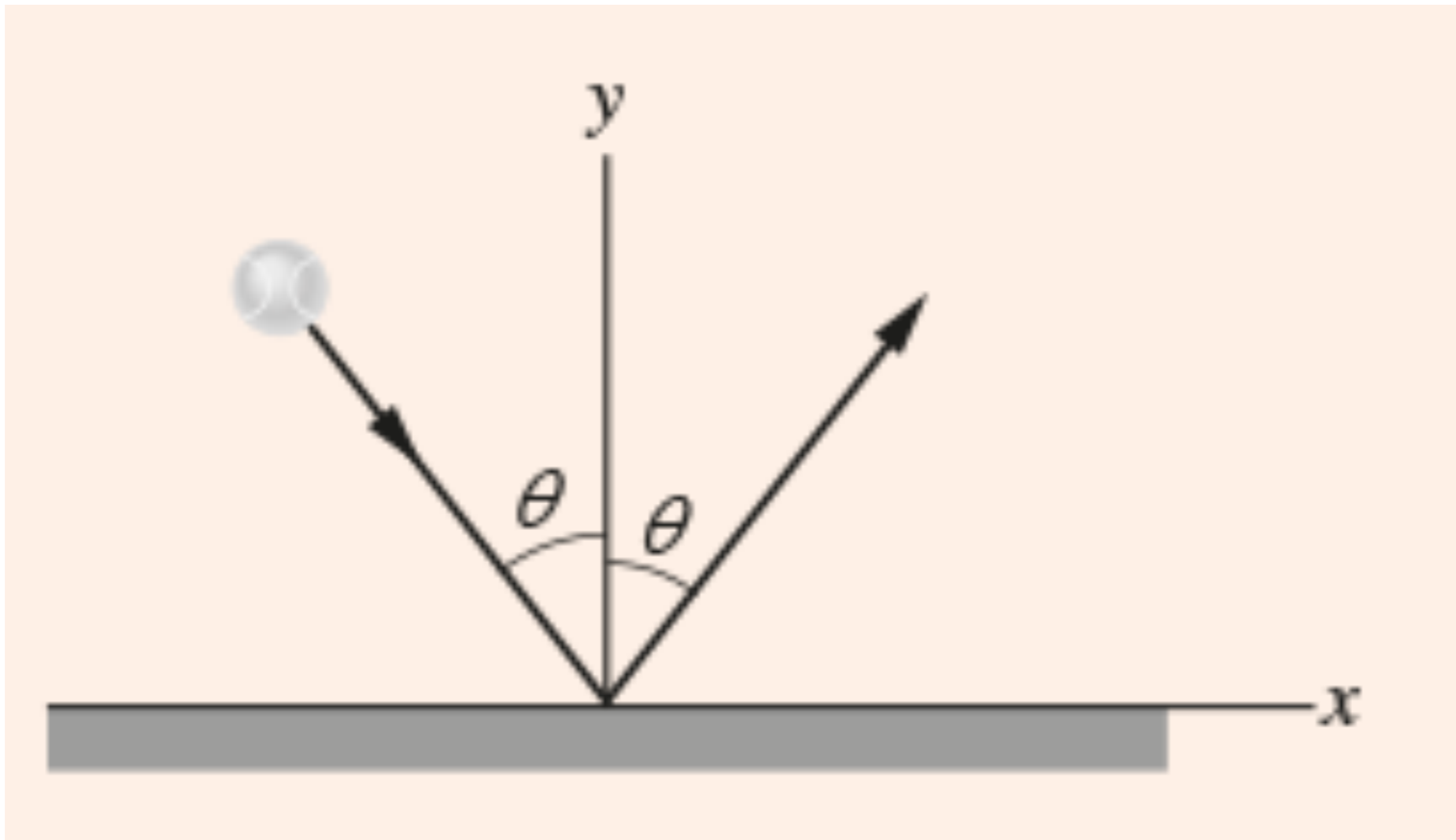
Foto di Harold E. Edgerton. © The Harold and Esther Edgerton Family Trust, per gentile concessione di Palm Press, Inc.

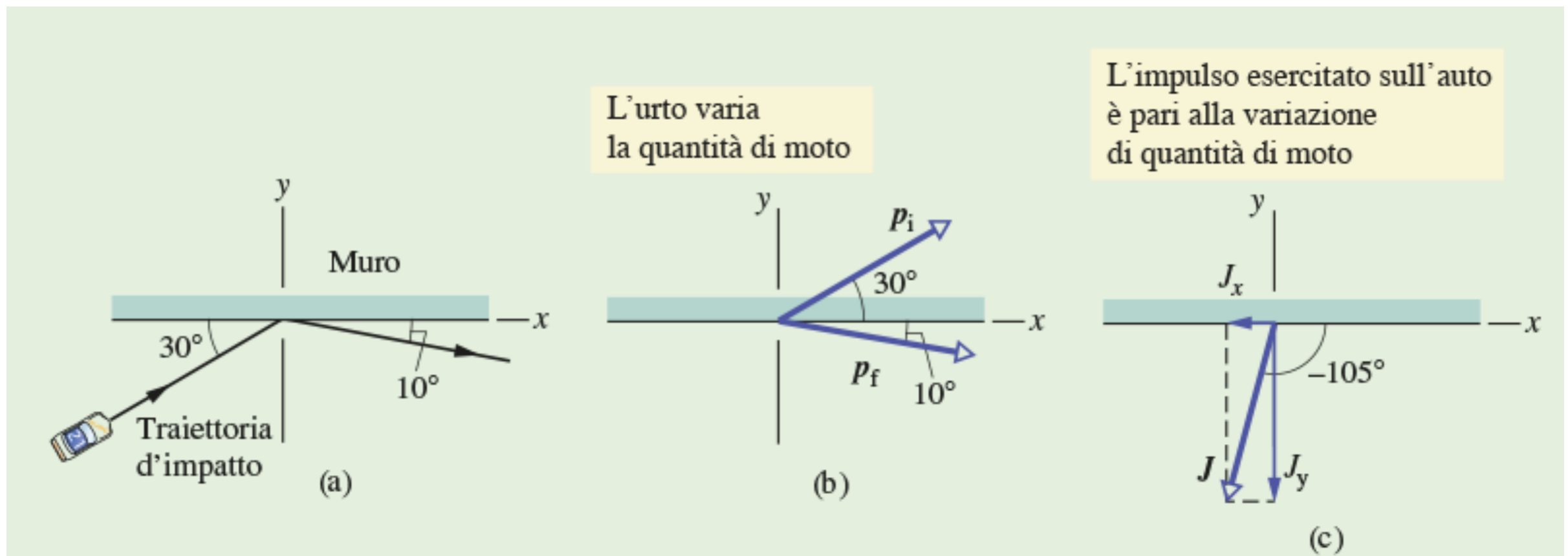


**Figura 9.8** Nella collisione tra mazza e palla, su quest'ultima agisce una forza  $F(t)$ .

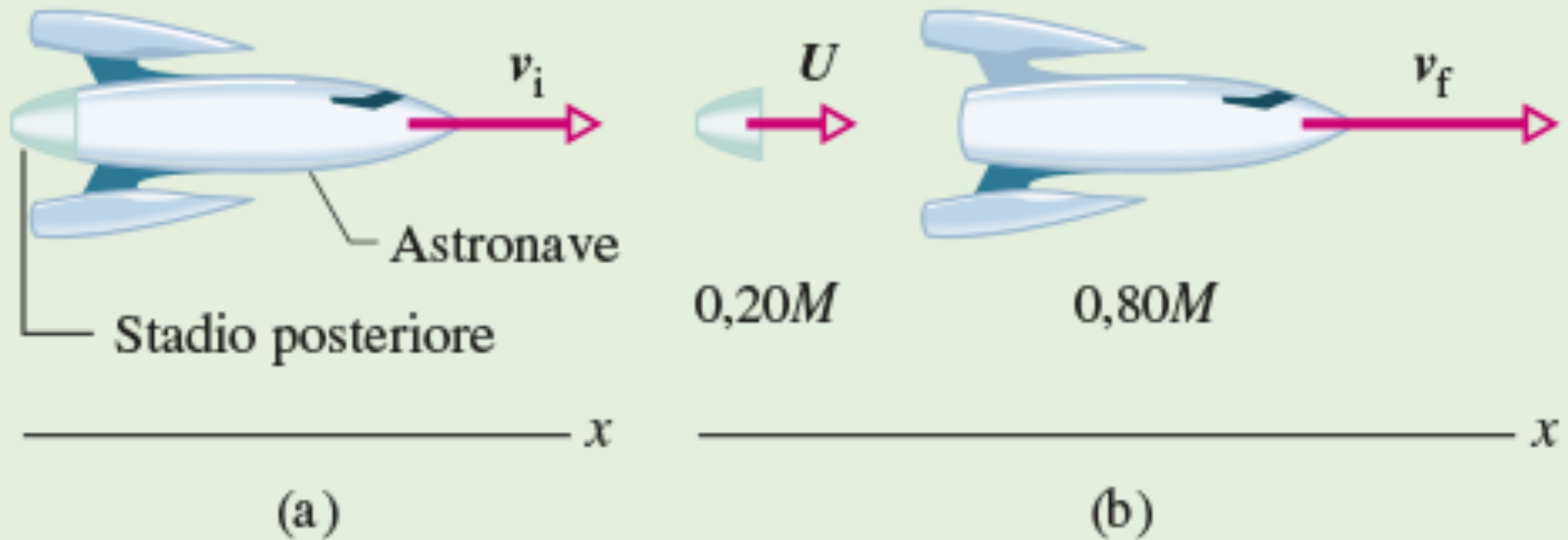






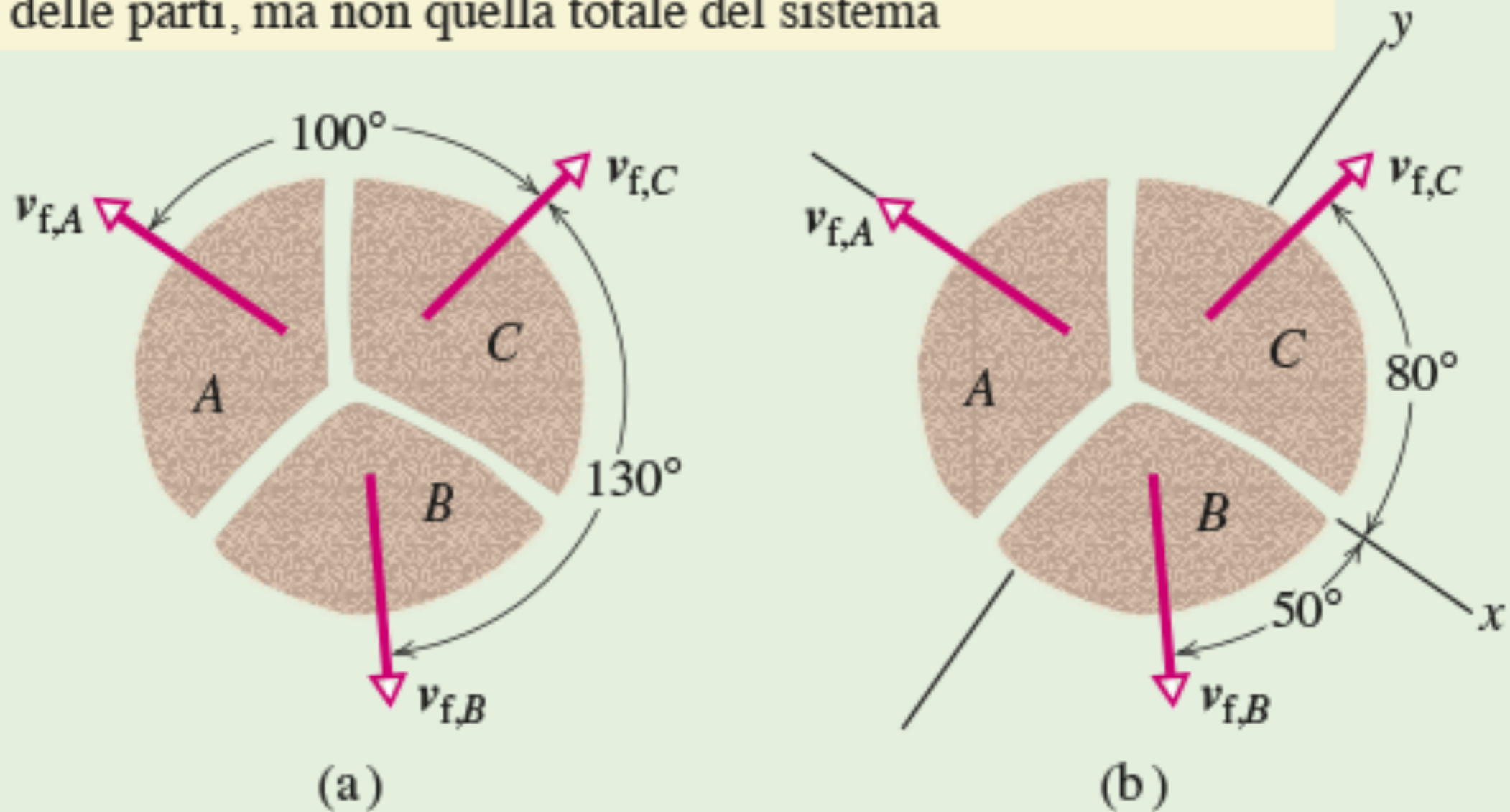


La separazione esplosiva può modificare le quantità di moto delle due parti, ma non quella totale del sistema

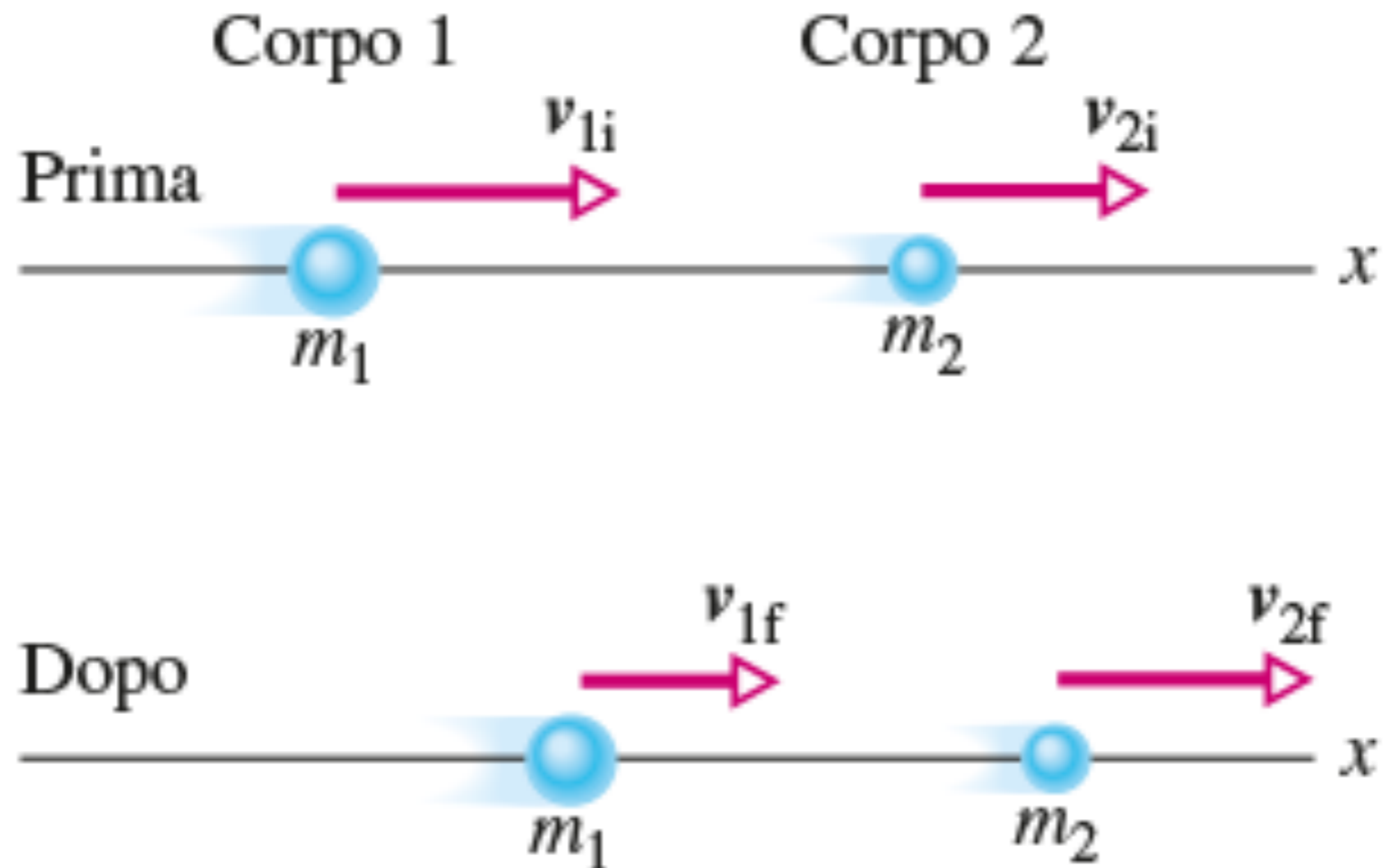




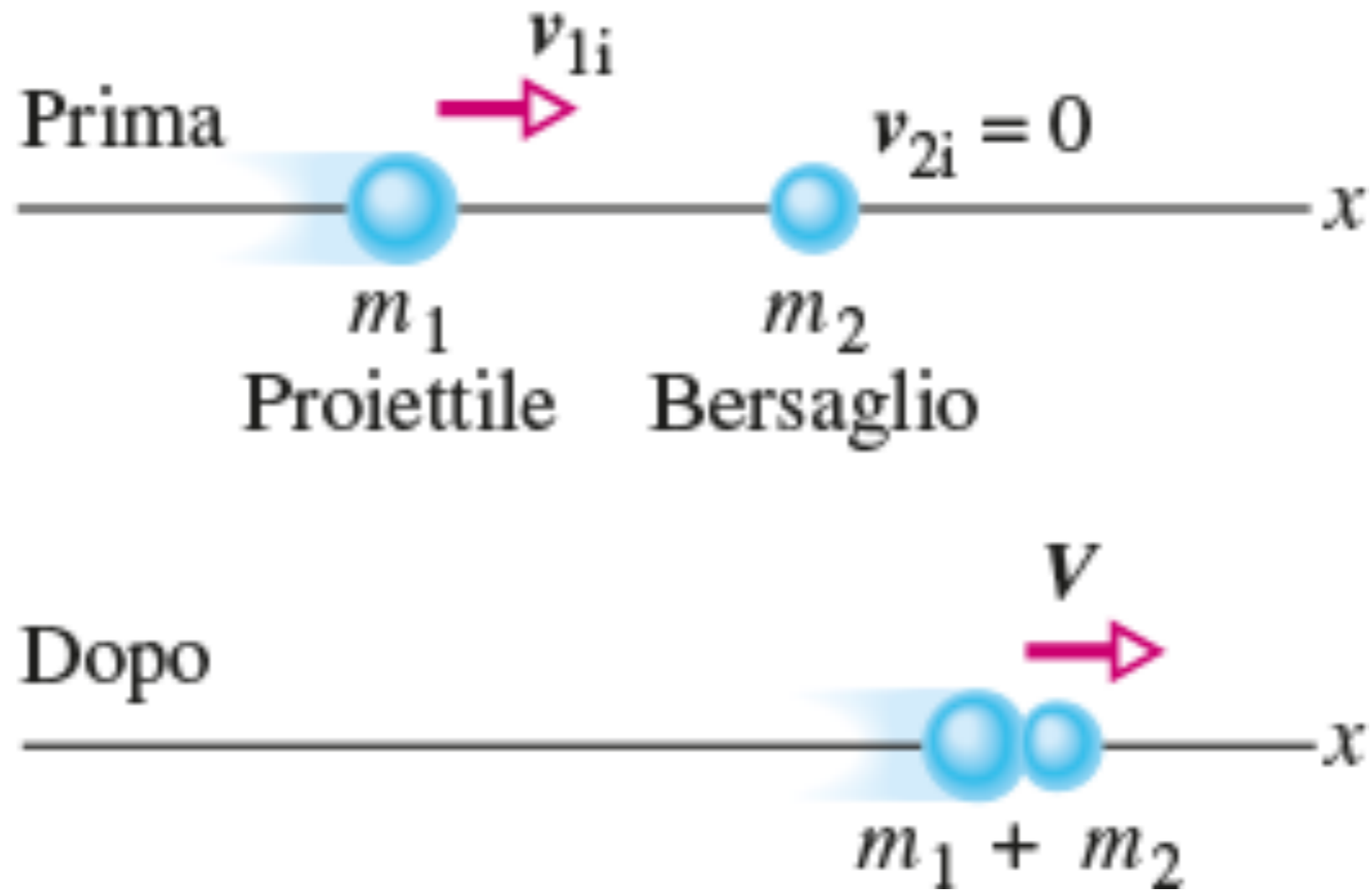
La separazione esplosiva può modificare le quantità di moto delle parti, ma non quella totale del sistema



## Configurazione generica di un urto anelastico

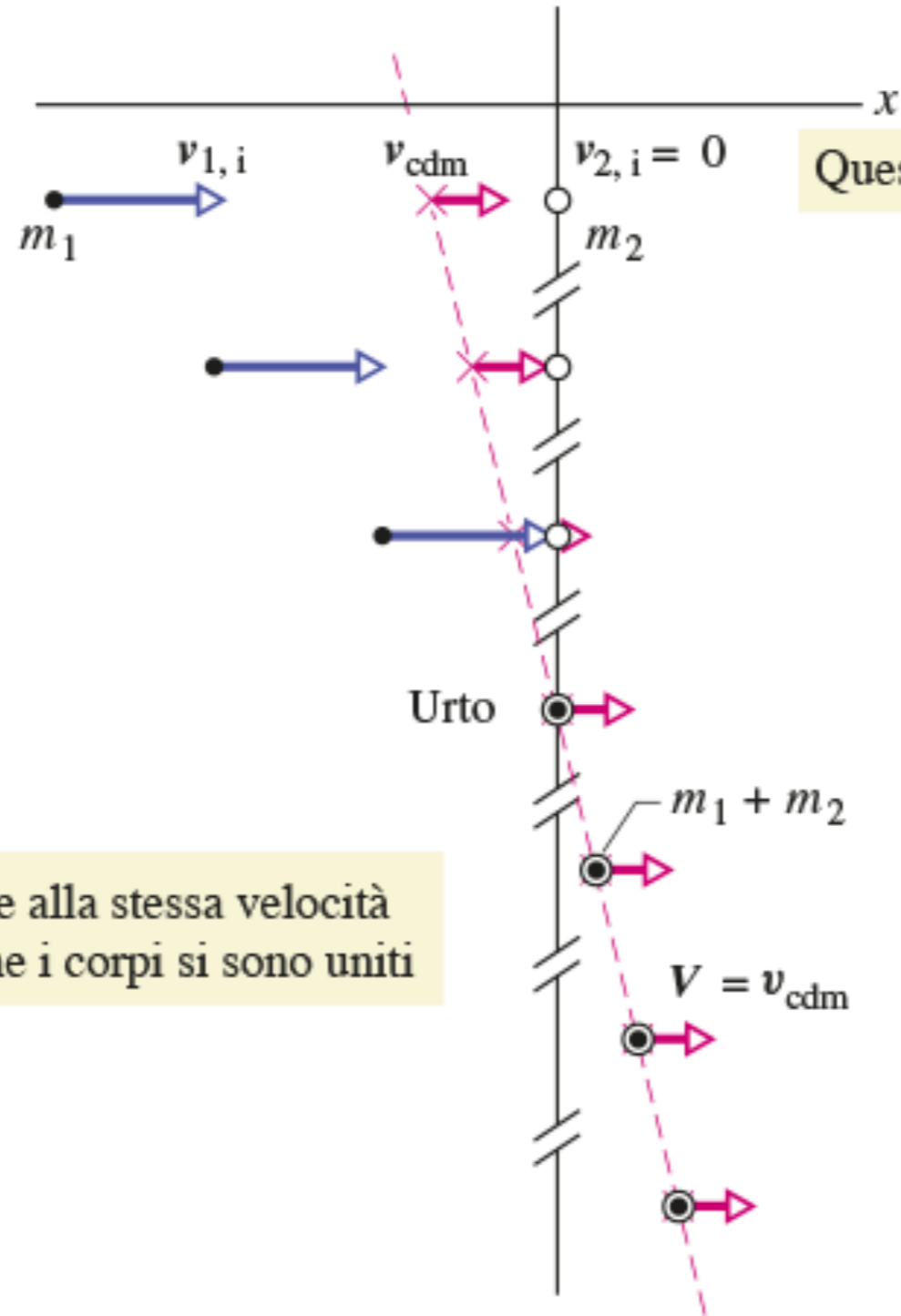


Nell'urto completamente anelastico  
i corpi restano attaccati insieme



Il cdm dei due corpi si trova tra di loro e procede a velocità costante

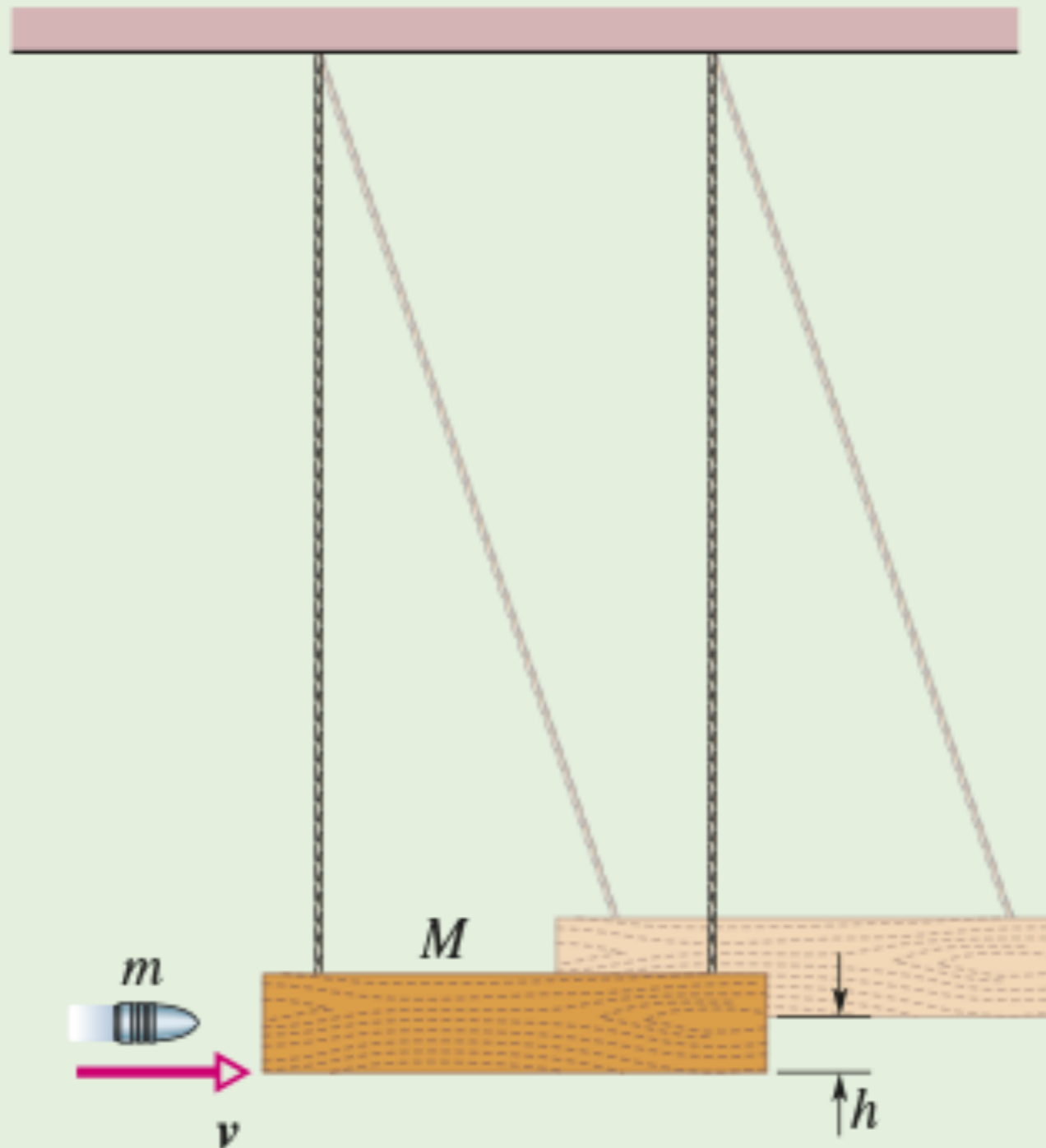
Questo è il proiettile in arrivo



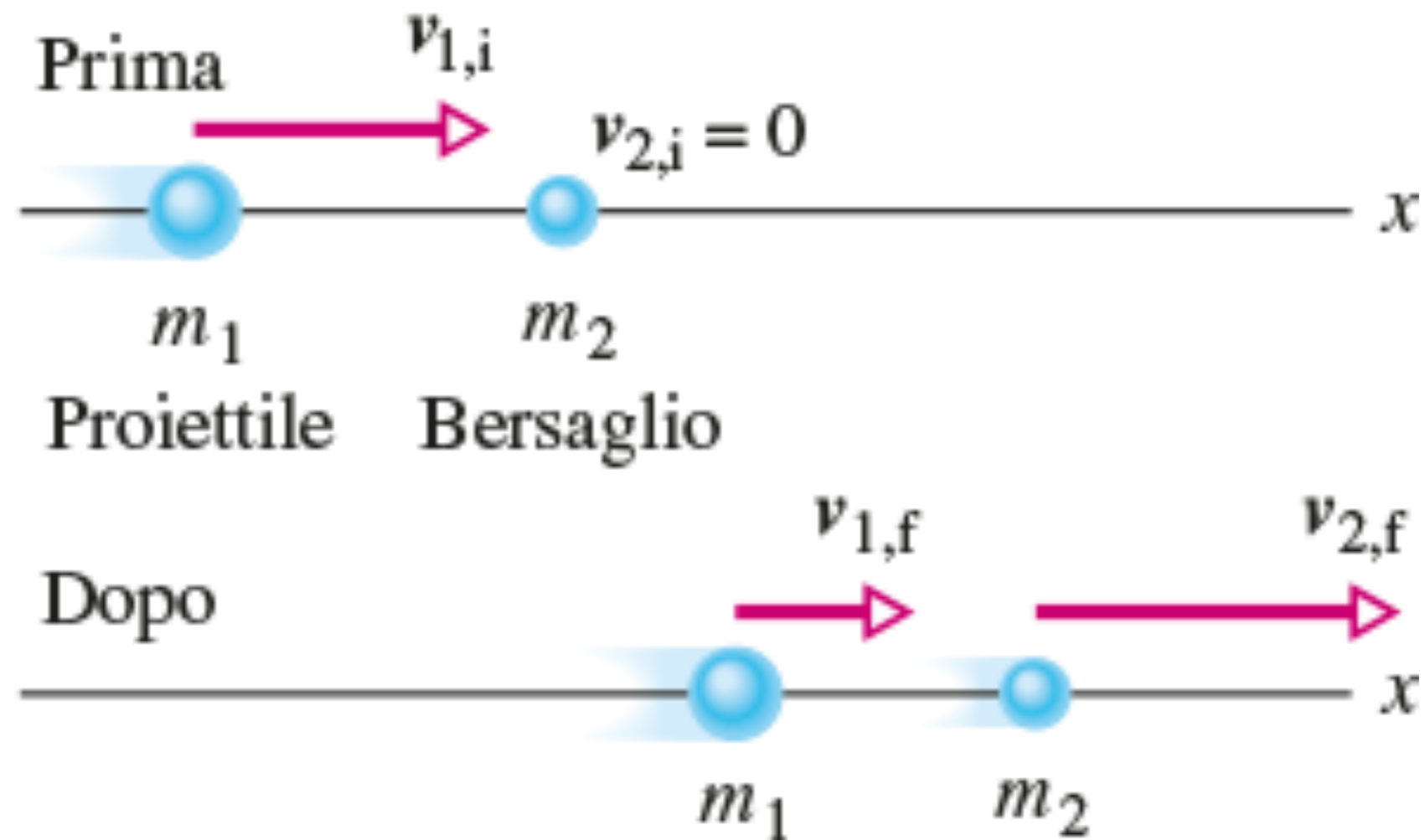
Questo è il bersaglio fermo

Il cdm procede alla stessa velocità anche dopo che i corpi si sono uniti

Qui avvengono due fenomeni. La pallottola urta il blocco.  
Poi il sistema blocco-pallottola dondola elevandosi di un'altezza  $h$

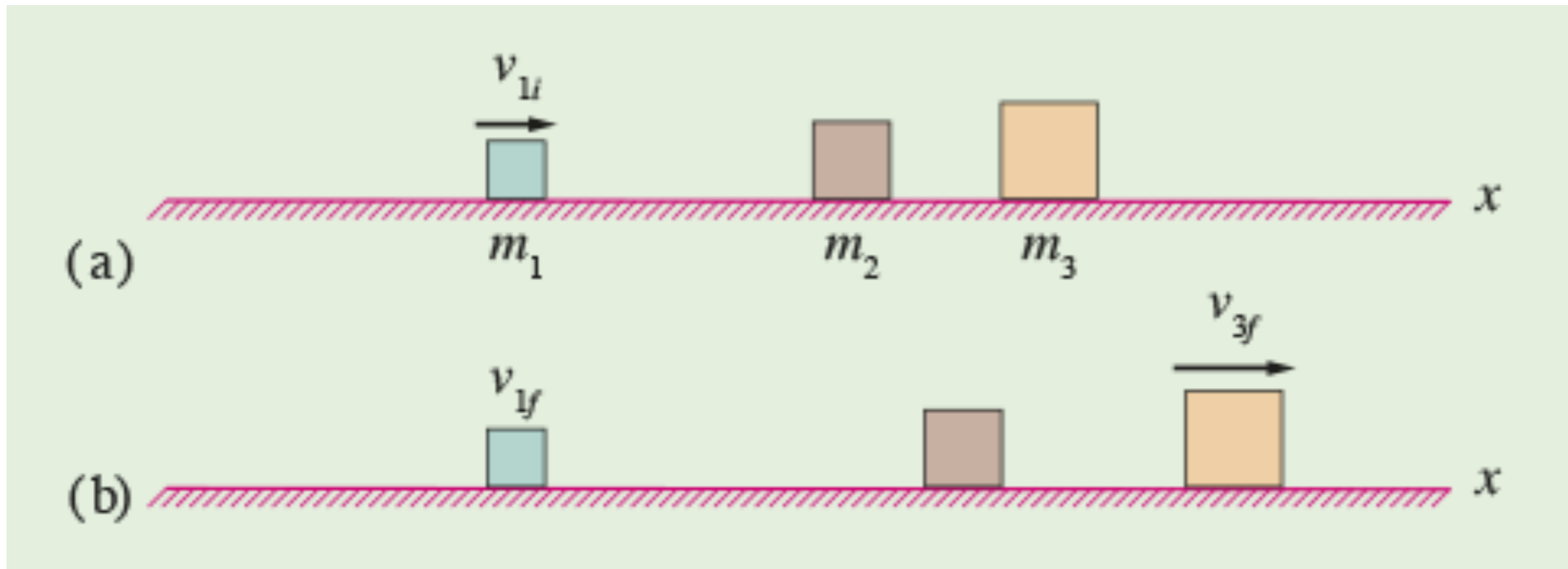


## Configurazione generica di un urto elastico con bersaglio fermo



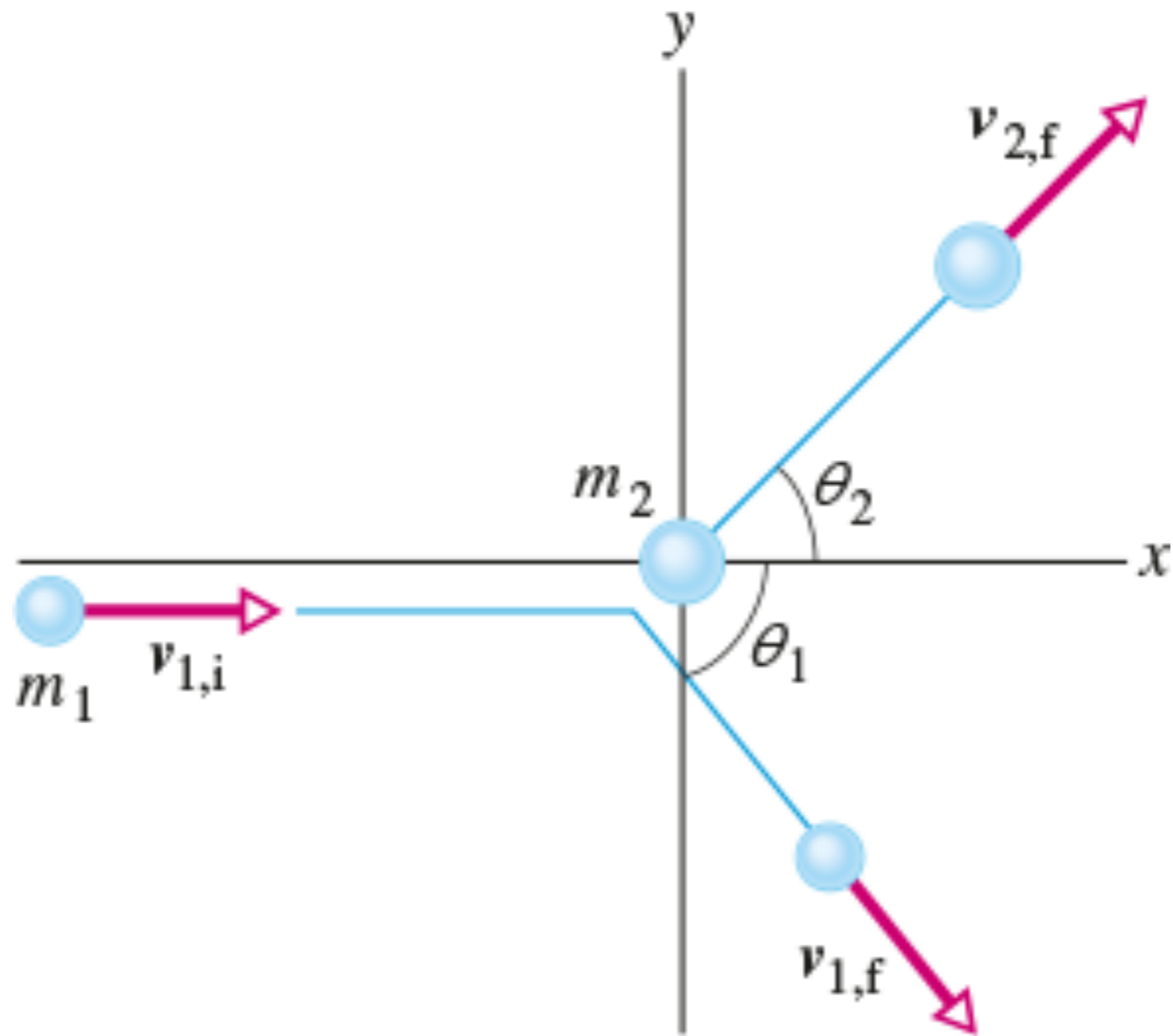
## Configurazione generica di un urto elastico con bersaglio in moto



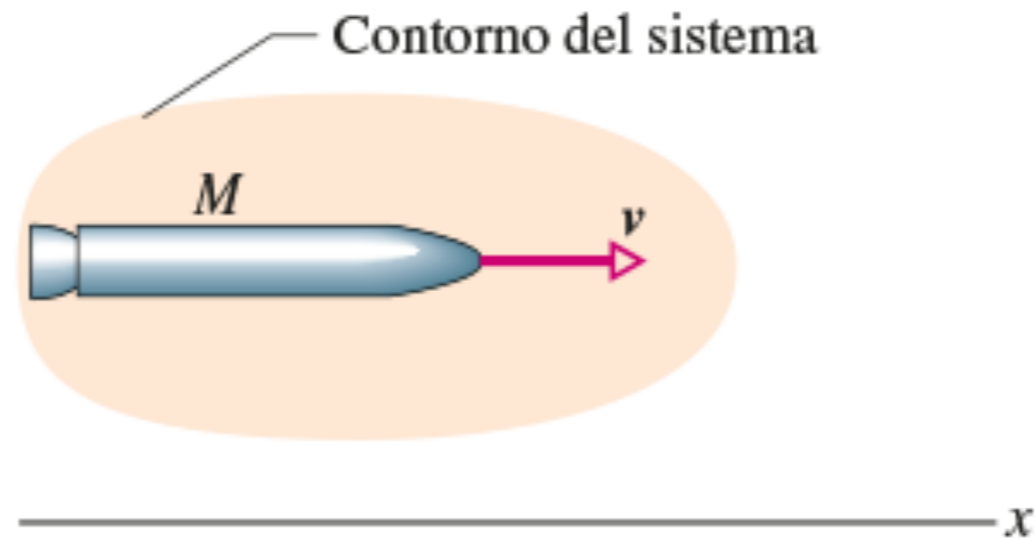




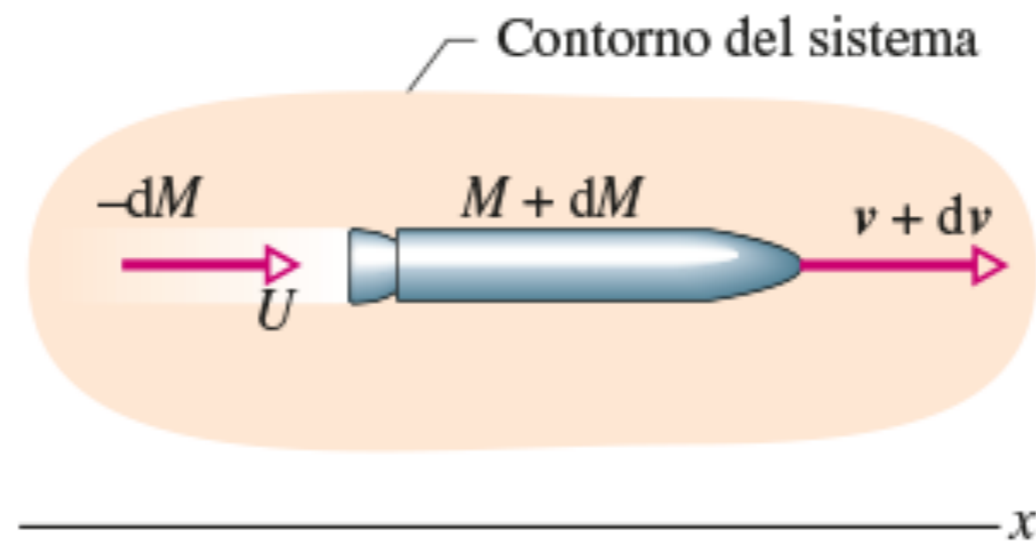
Urto di striscio che conserva quantità di moto ed energia cinetica



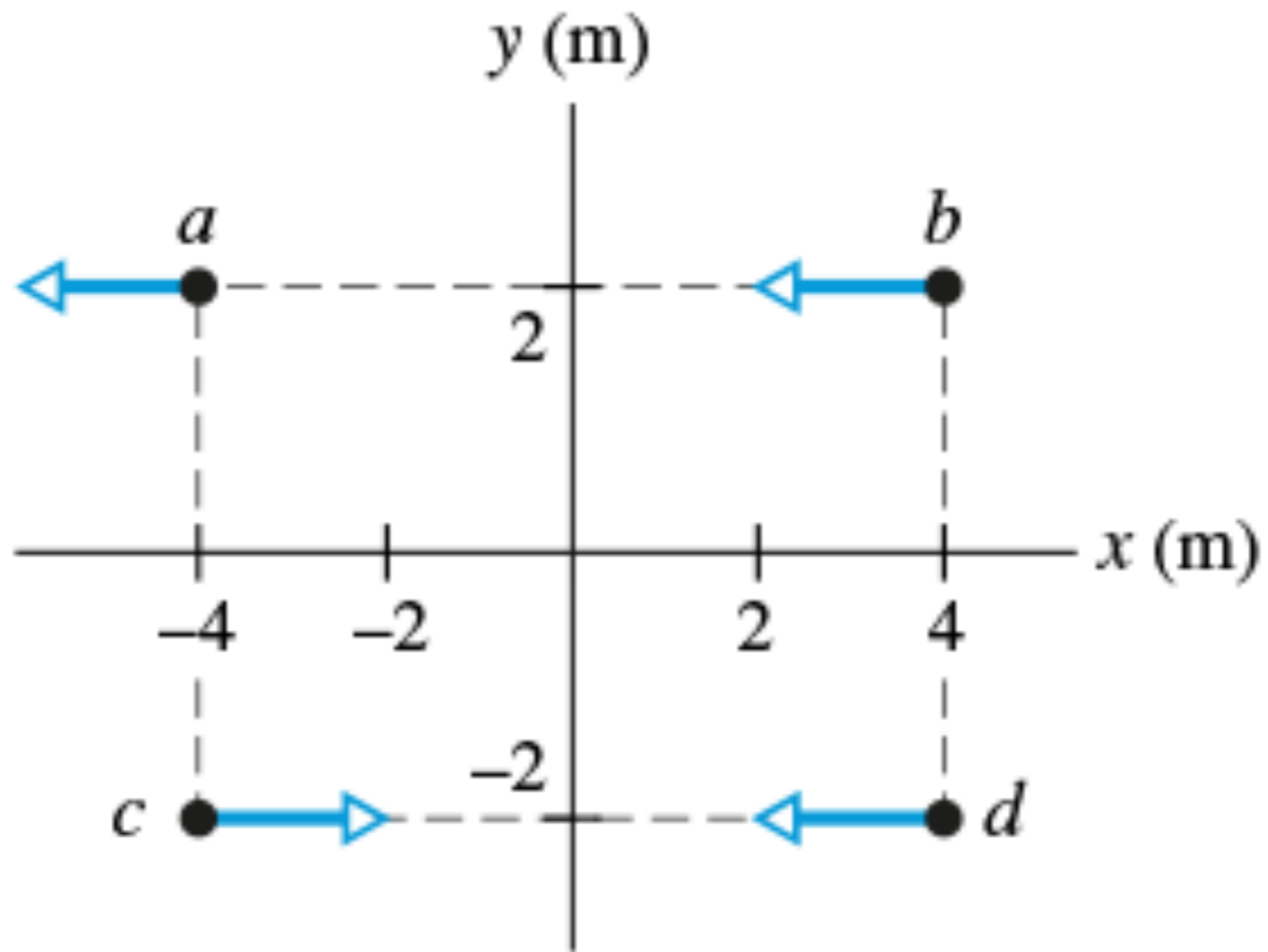
L'espulsione di una massa dall'ugello del razzo ne accresce la velocità

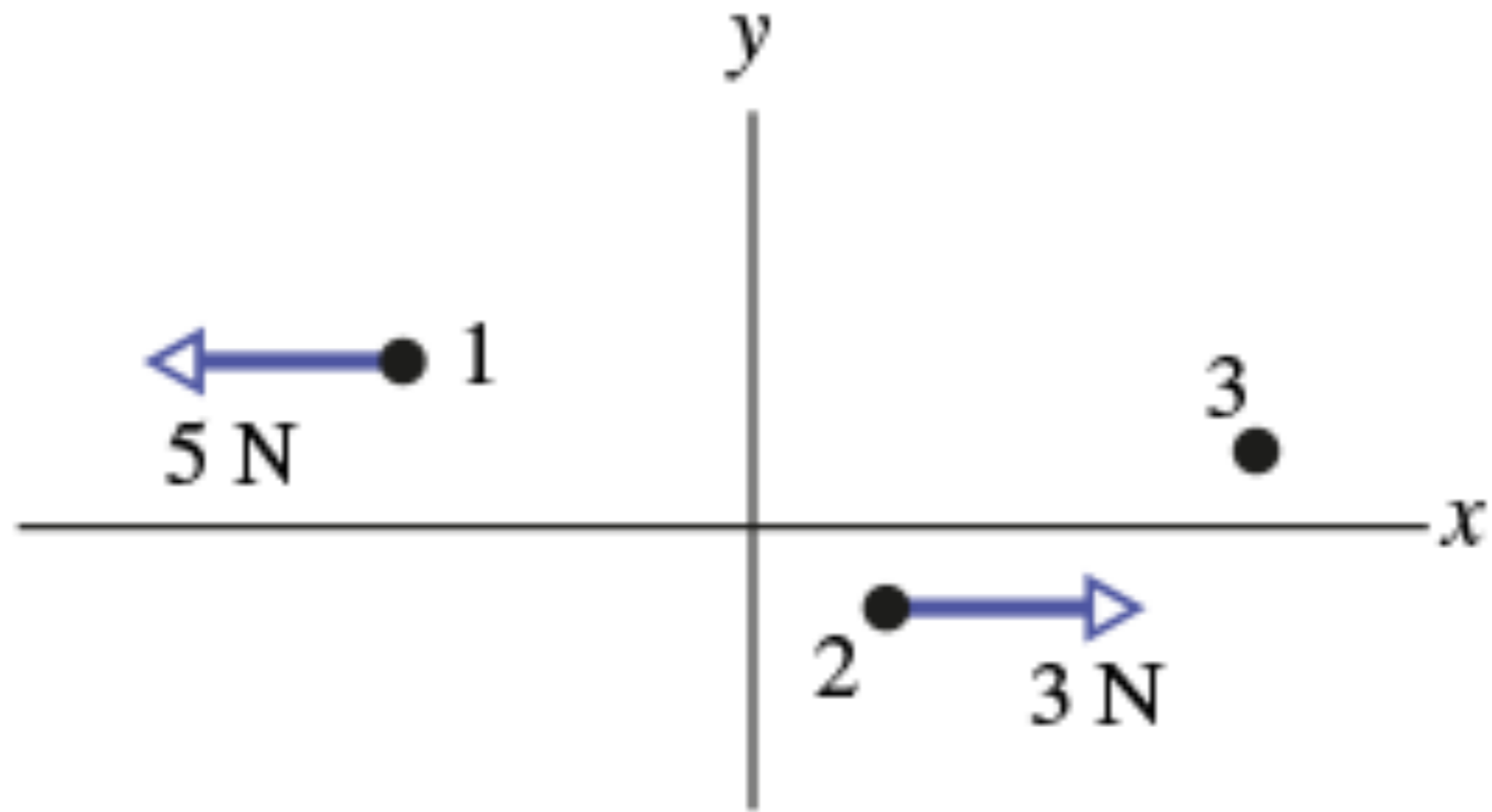


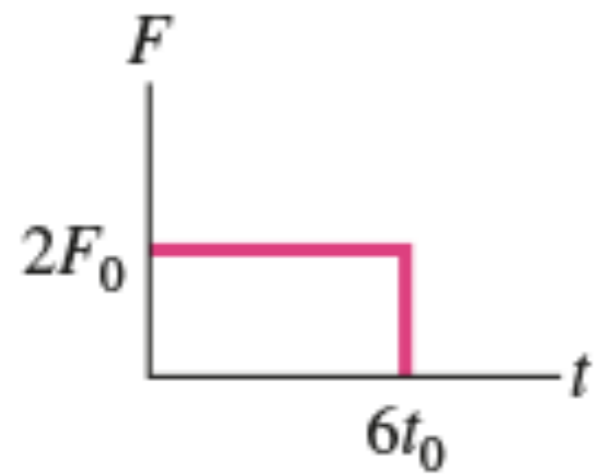
(a)



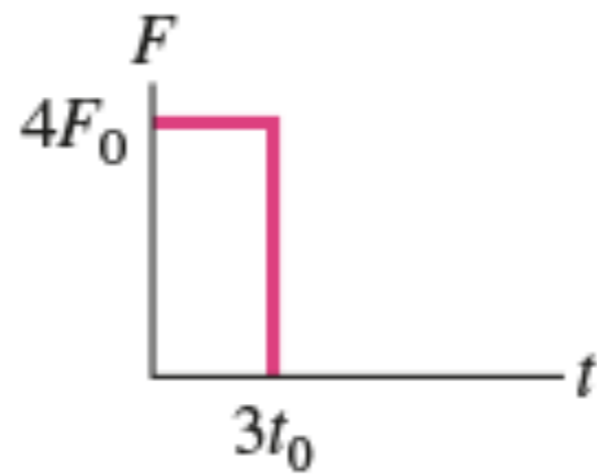
(b)



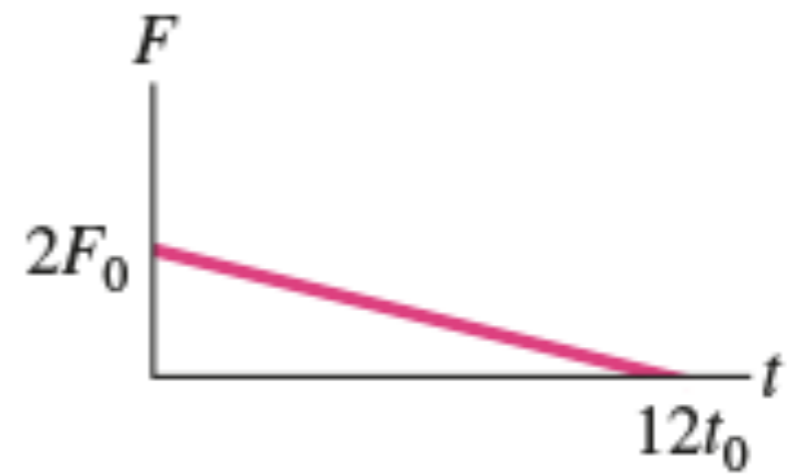




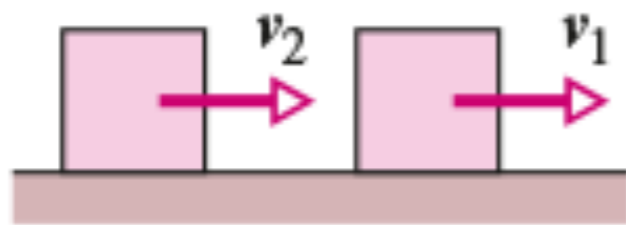
(a)



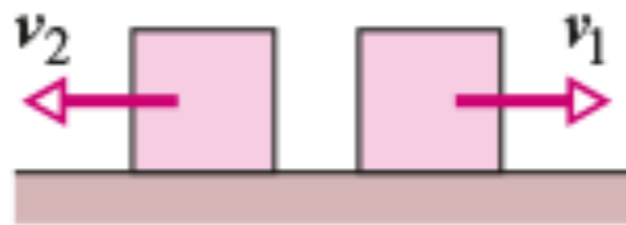
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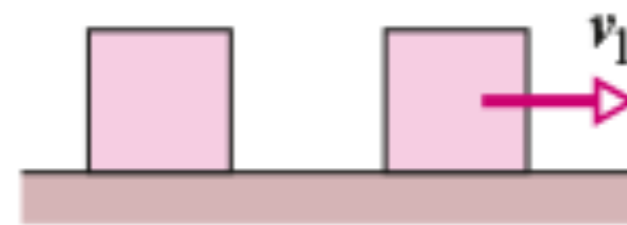
(c)



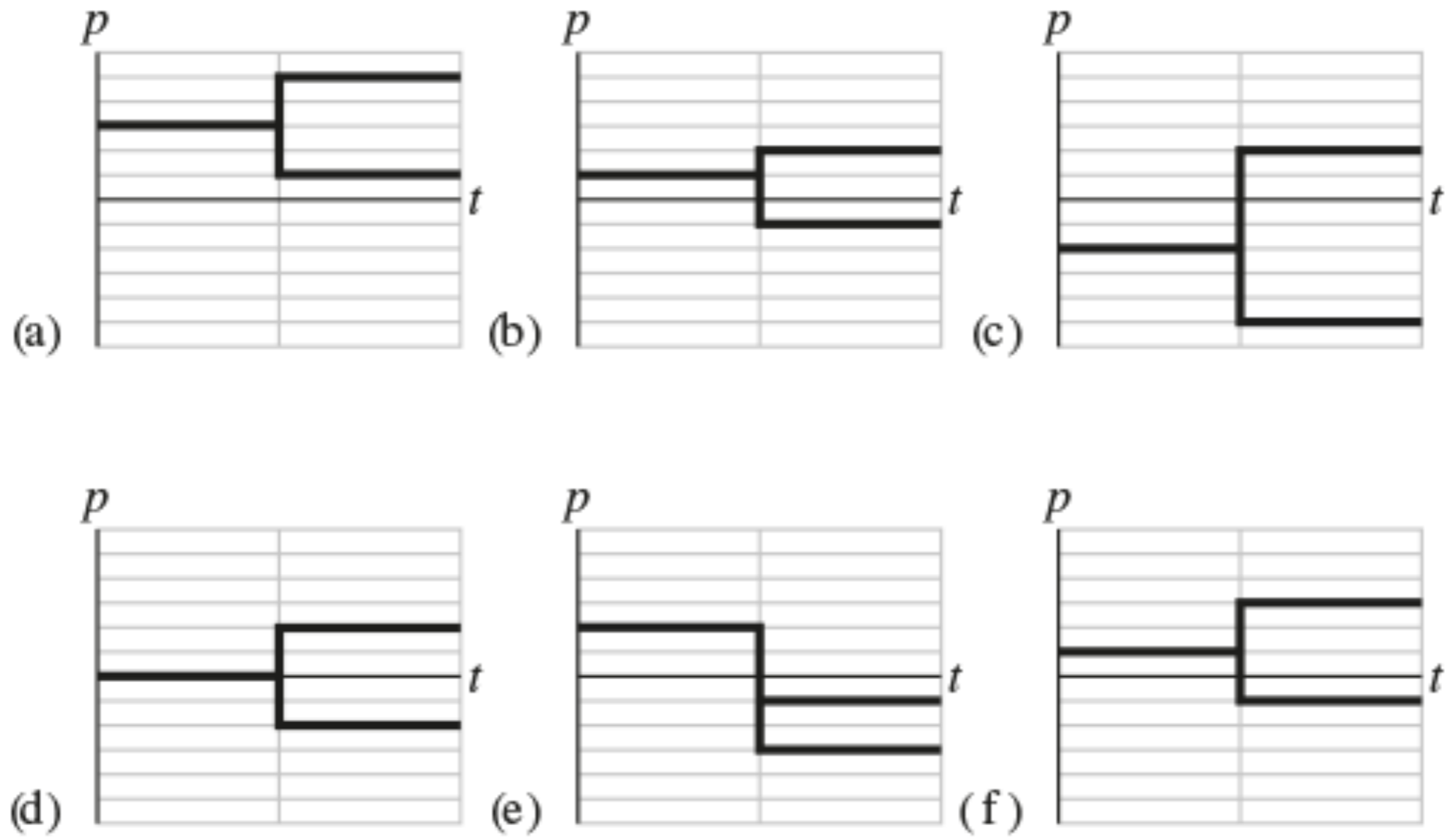
(a)

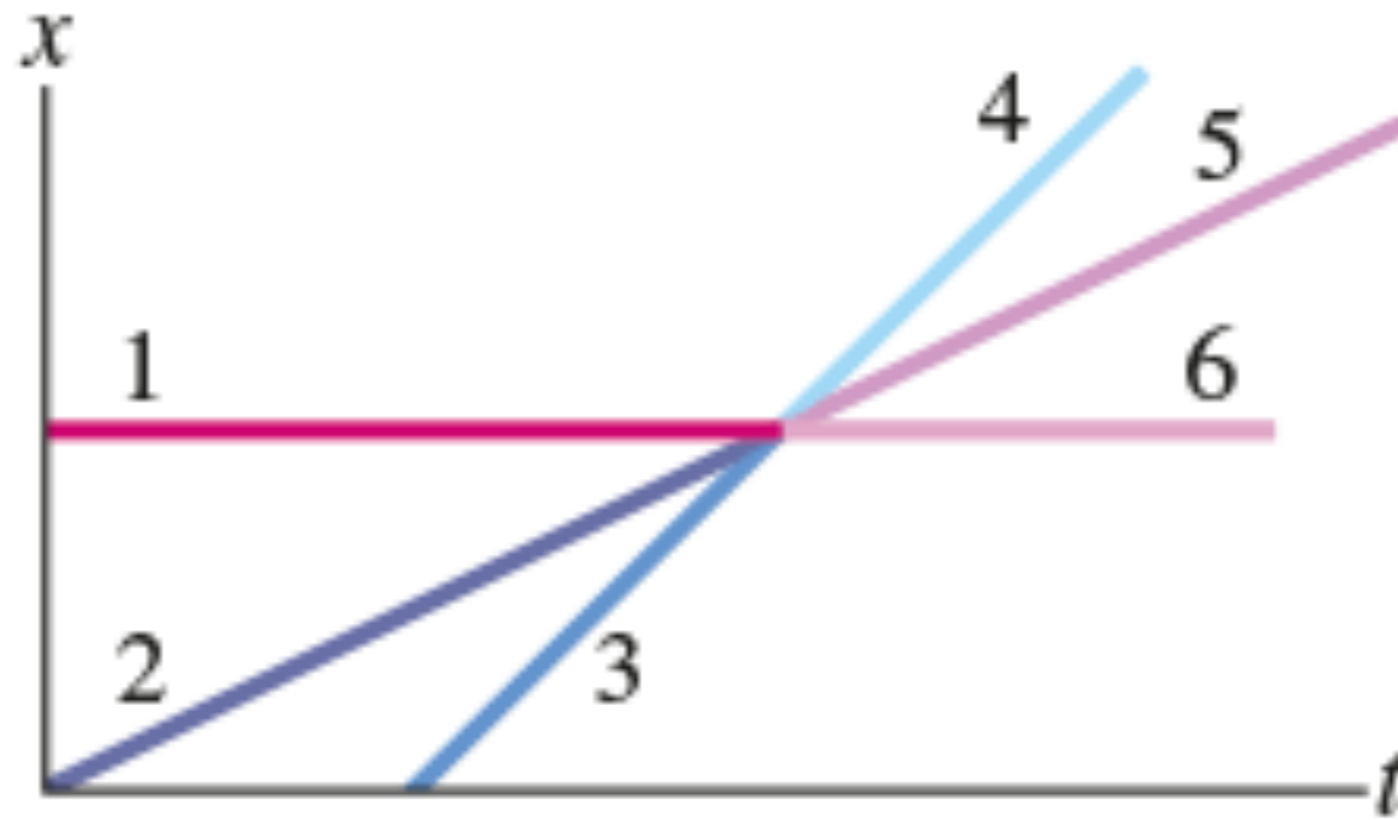


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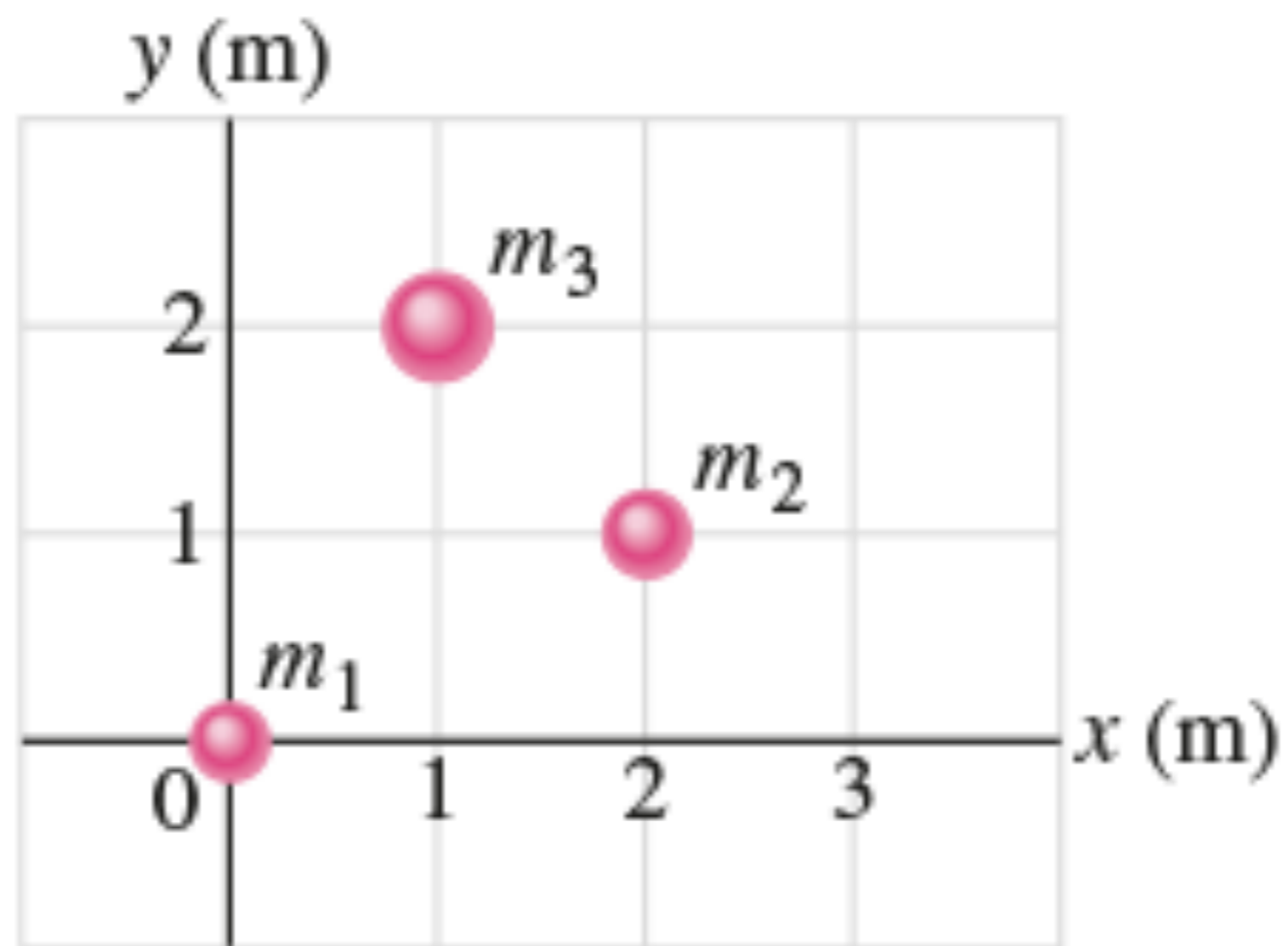


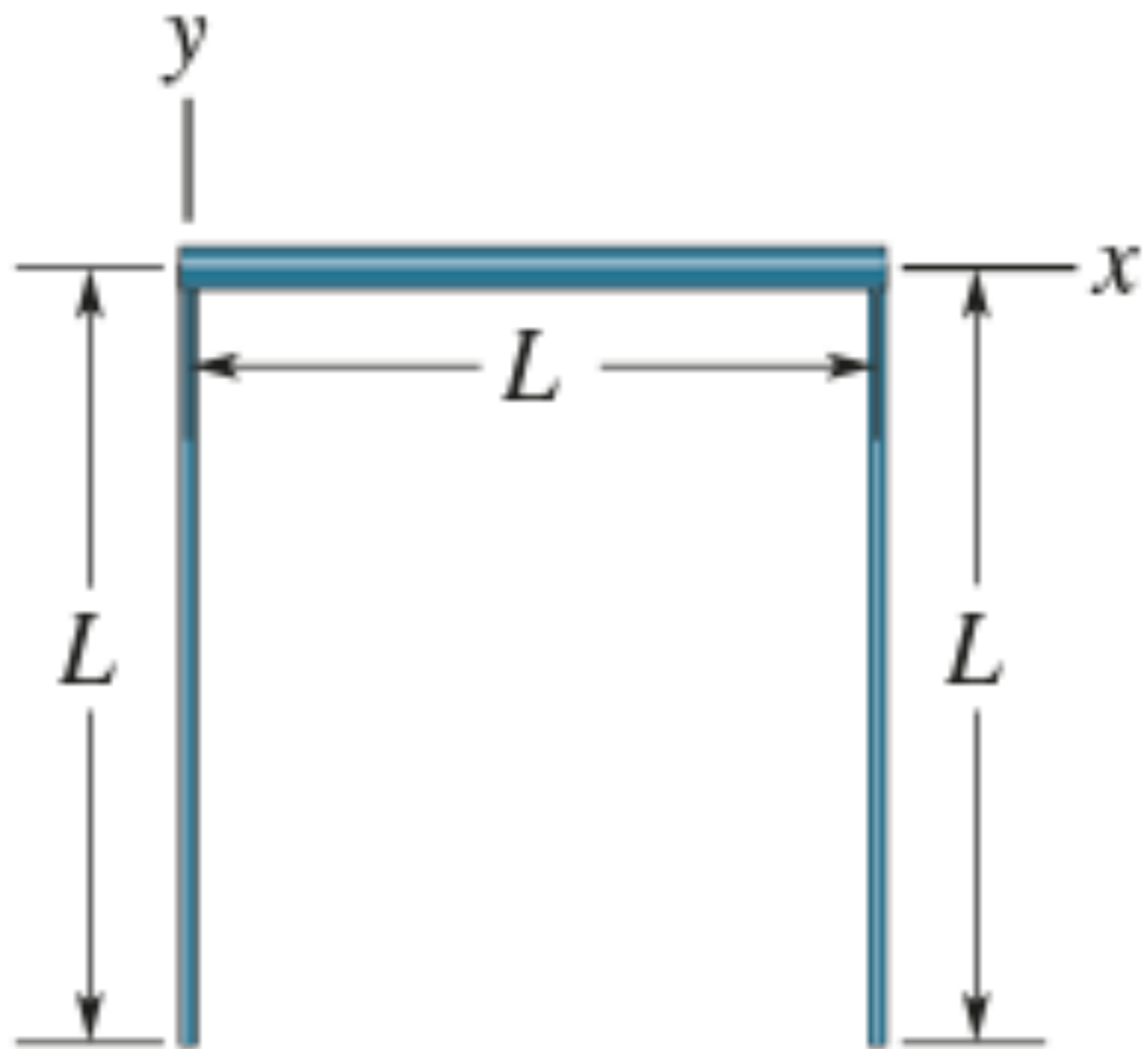
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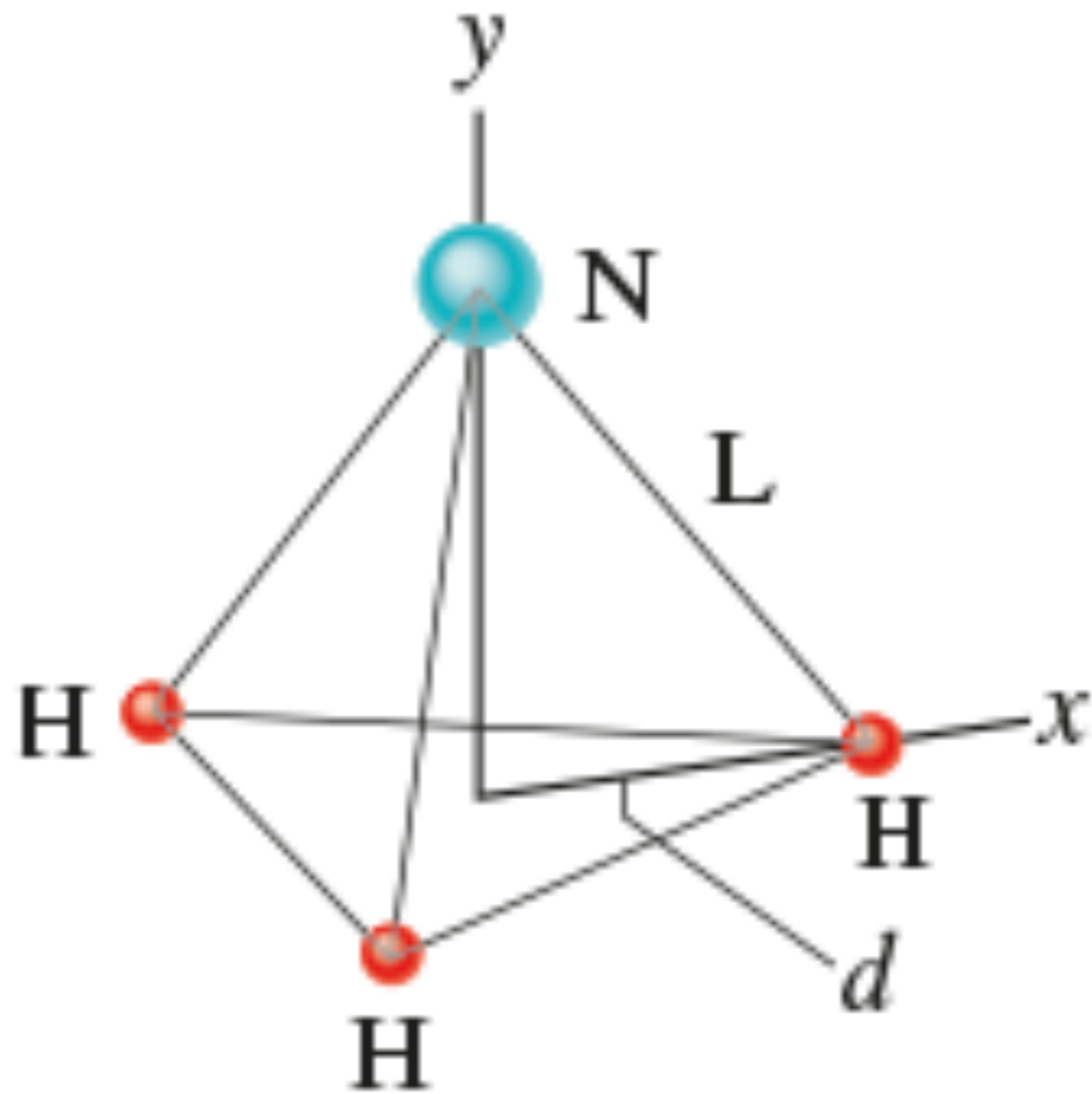






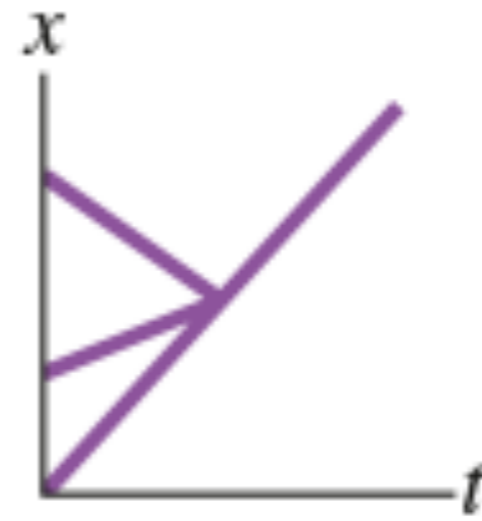




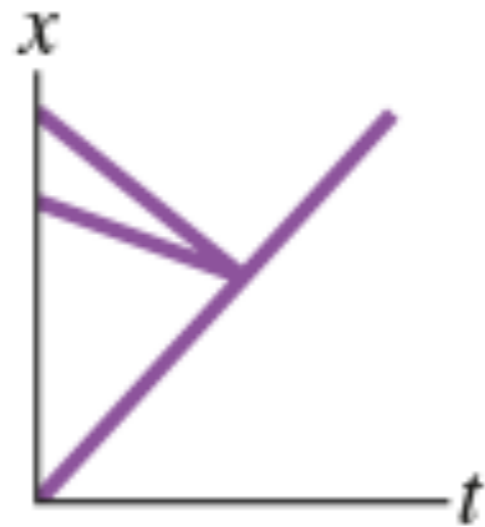




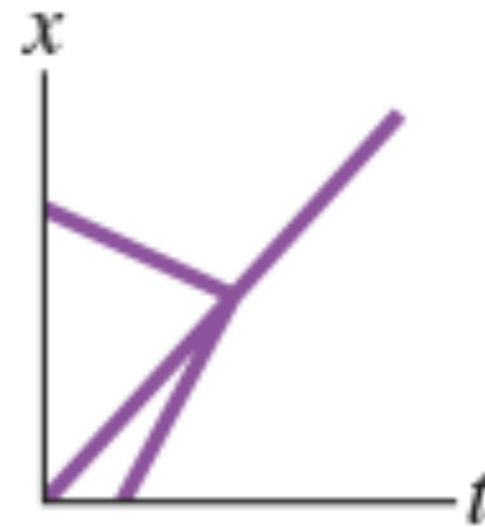
(1)



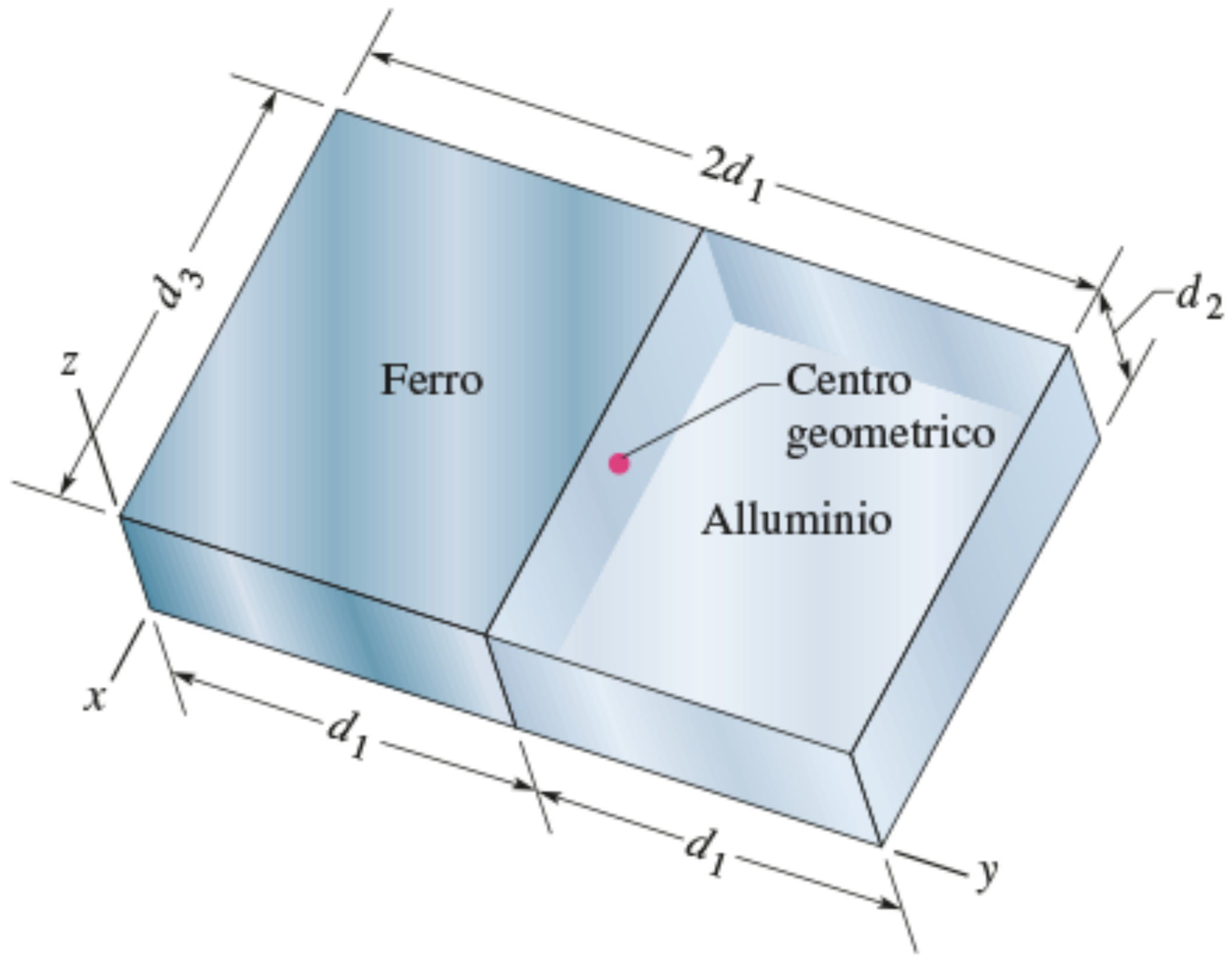
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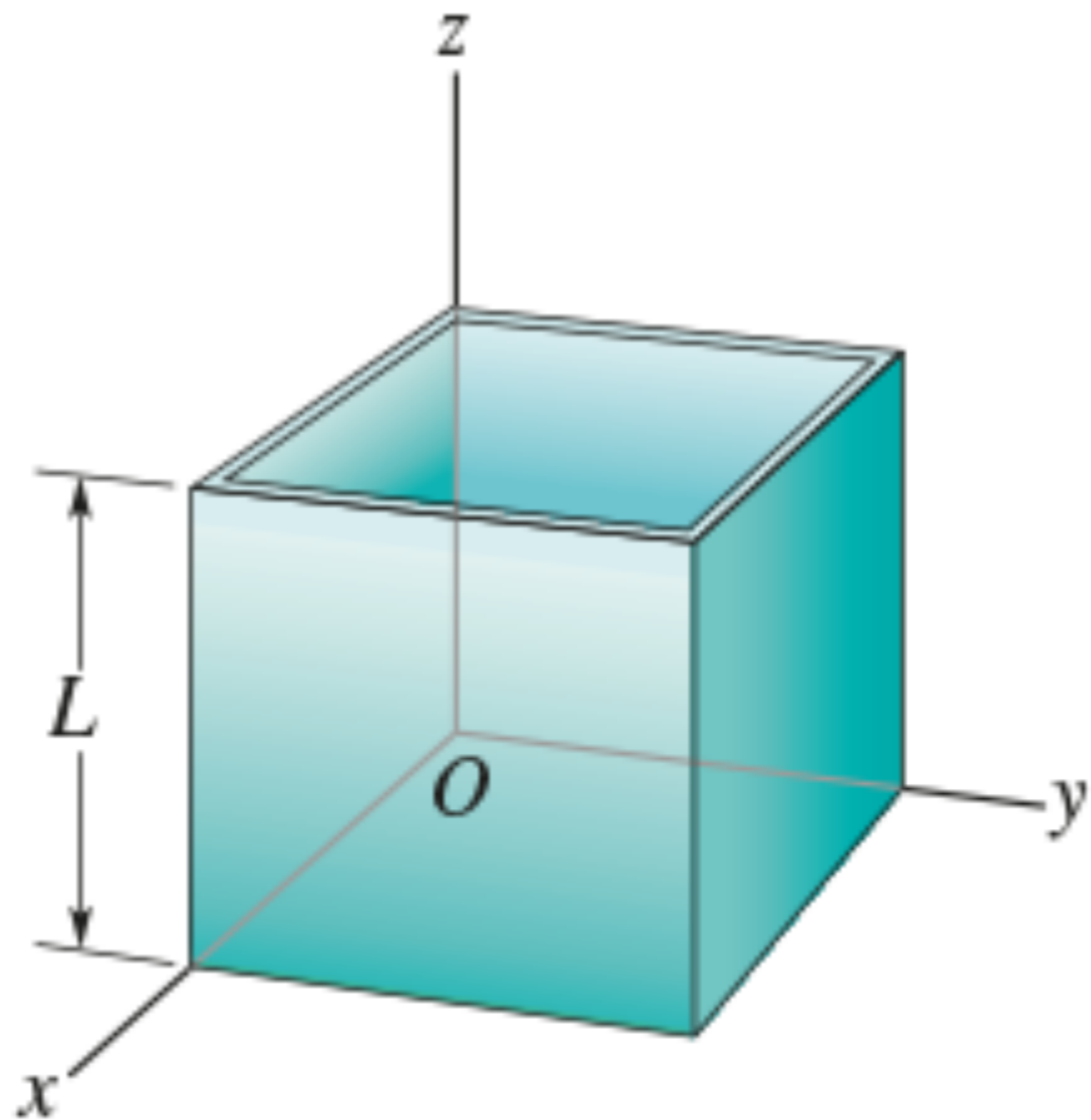


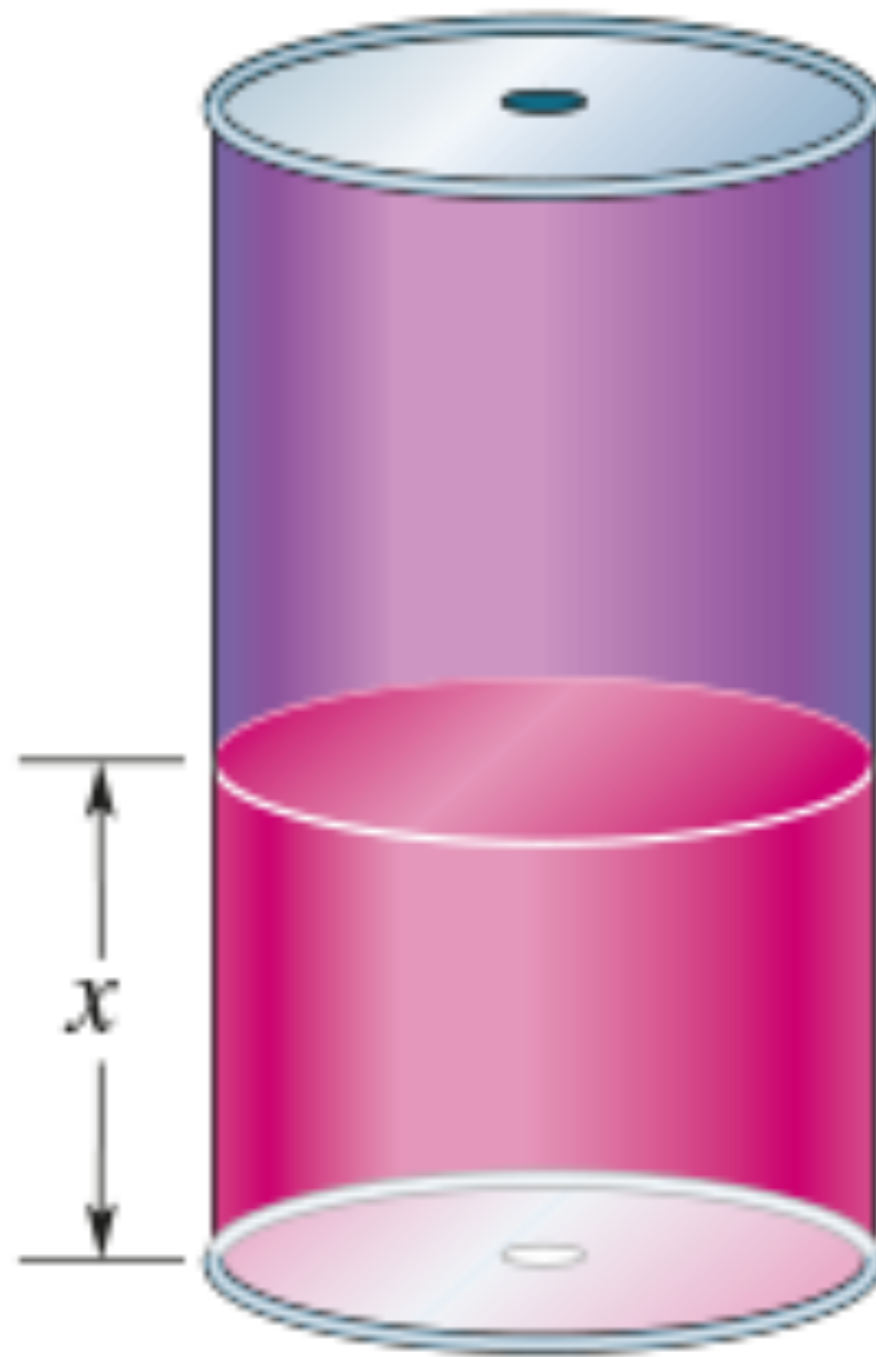
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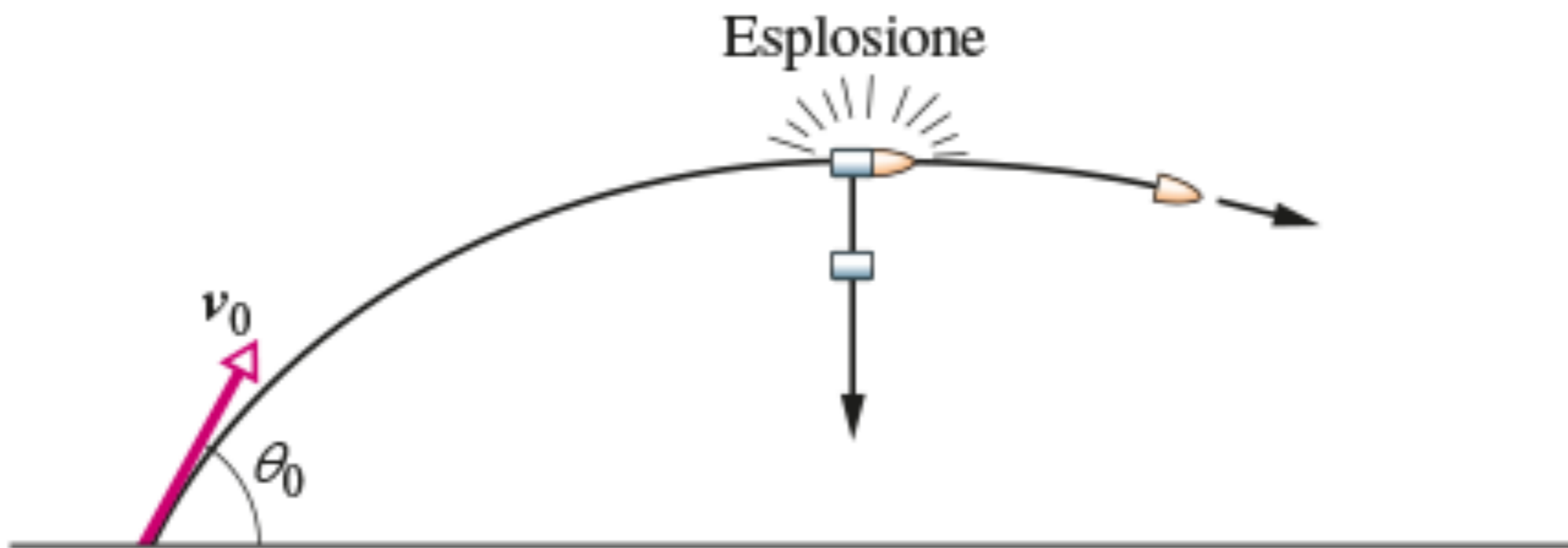


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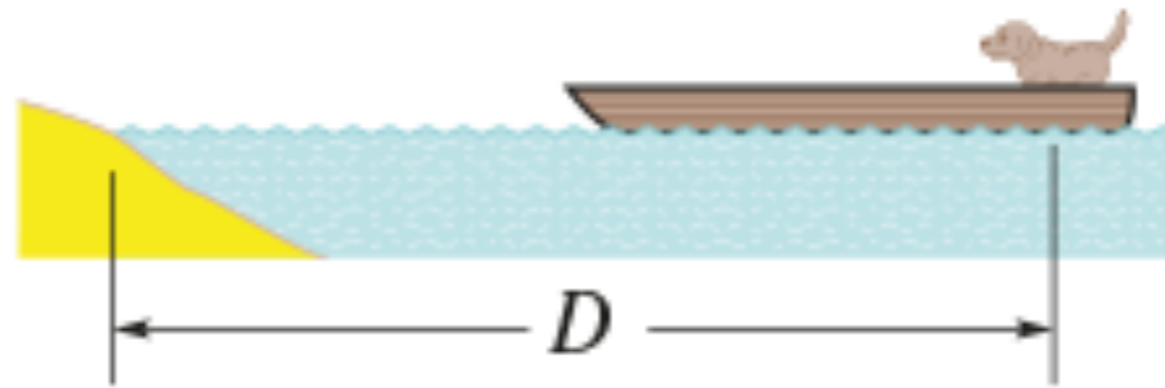












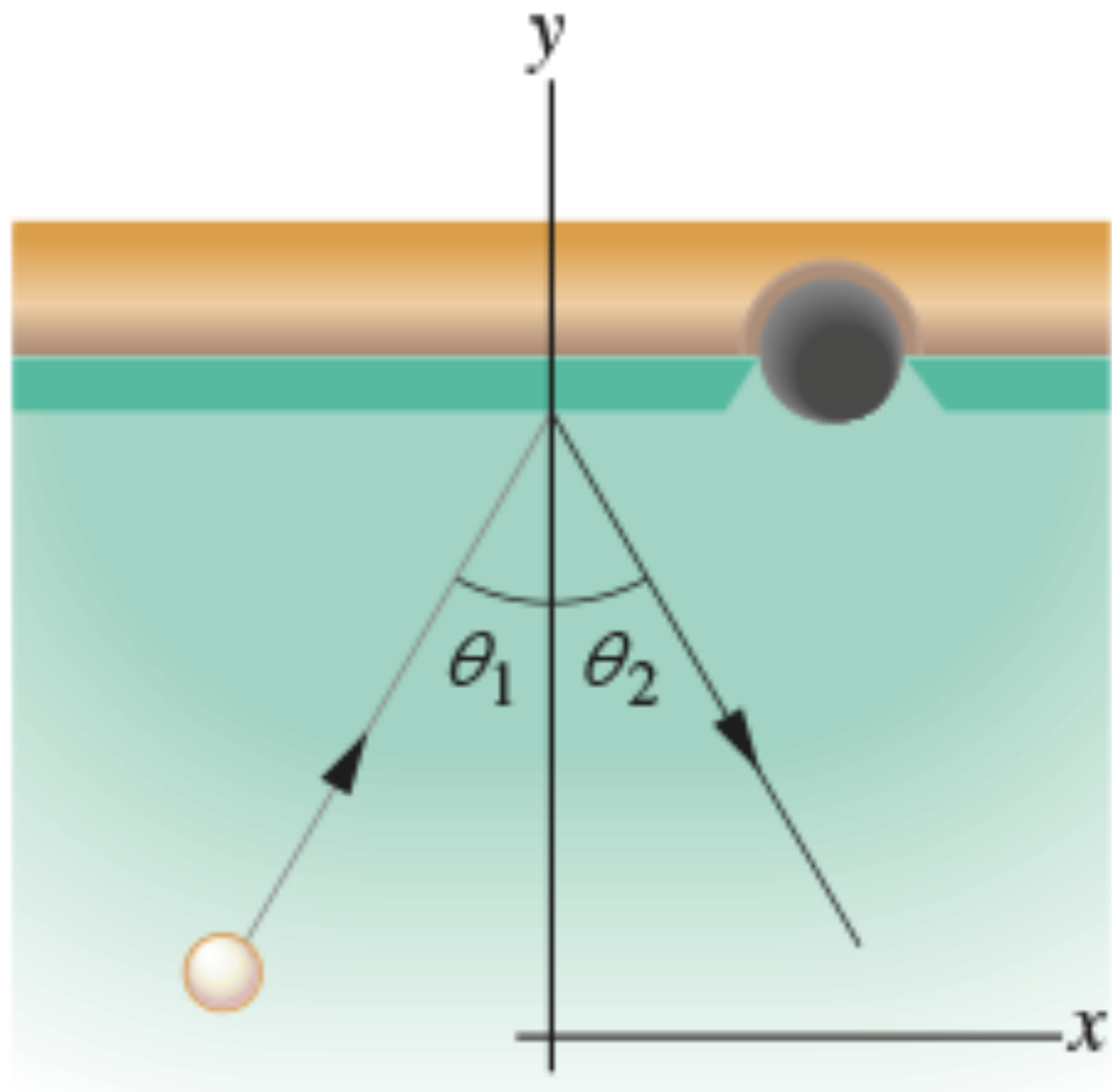
(a)

Spostamento del cane  $d_c$



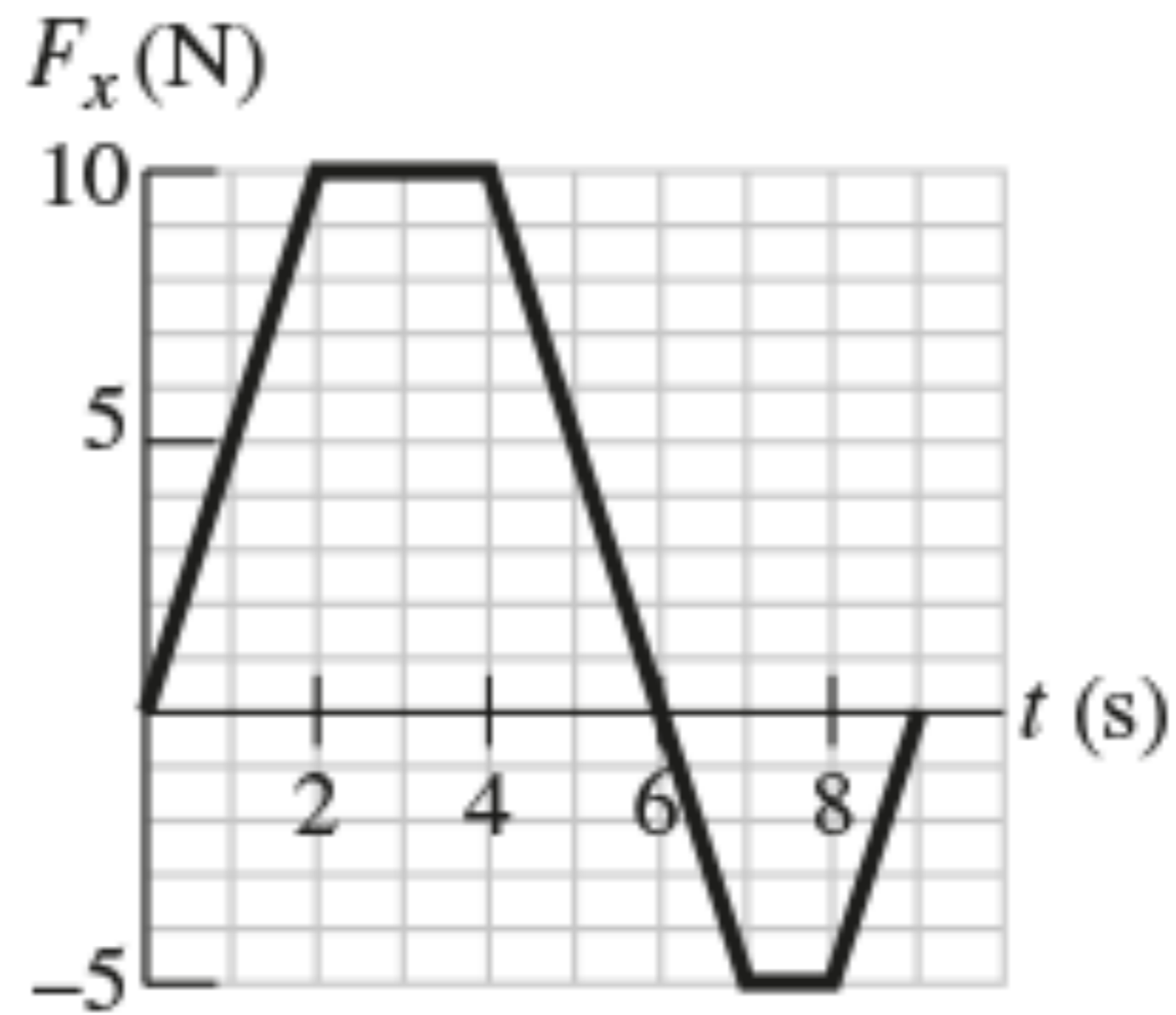
Spostamento della zattera  $d_z$

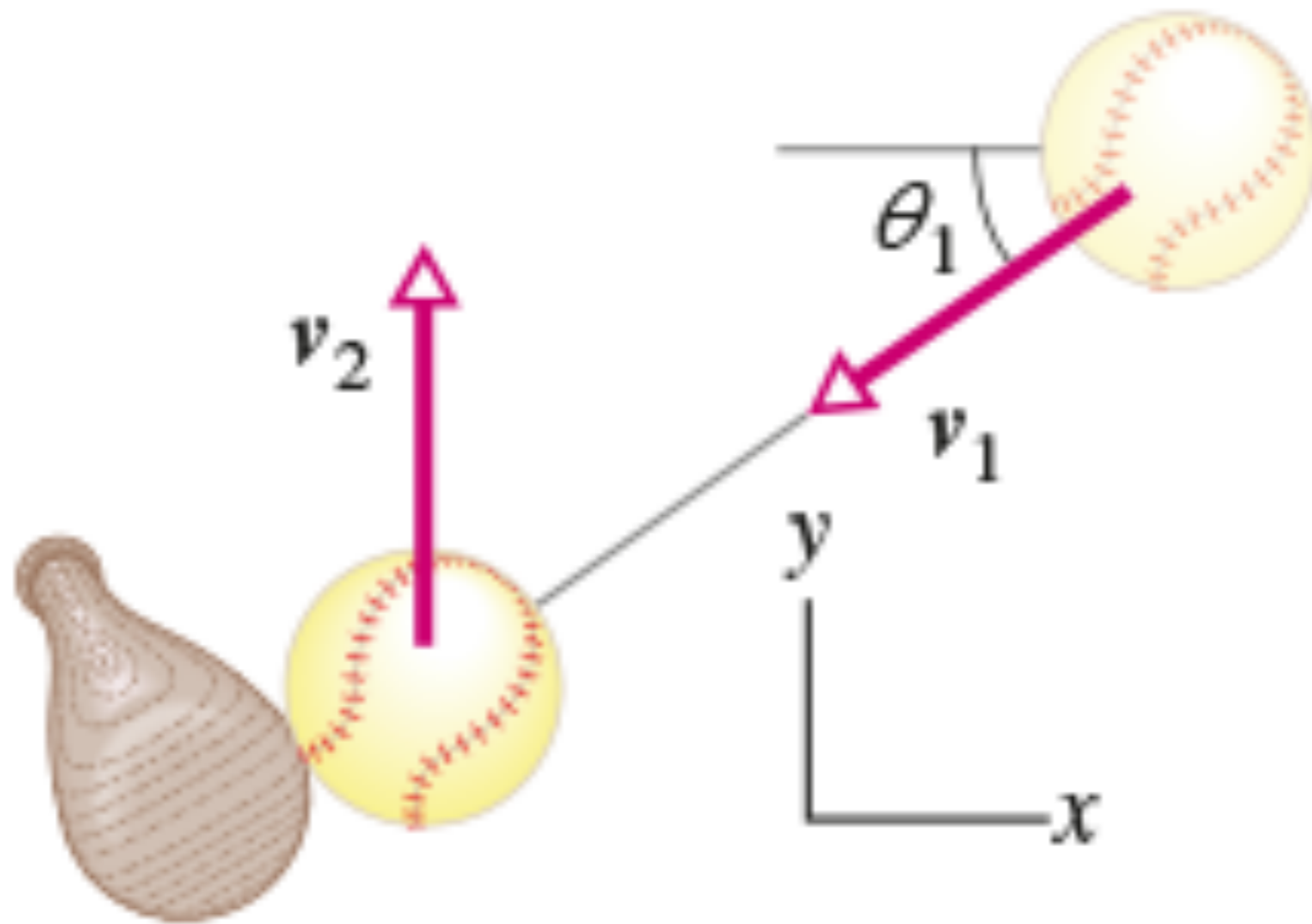
(b)

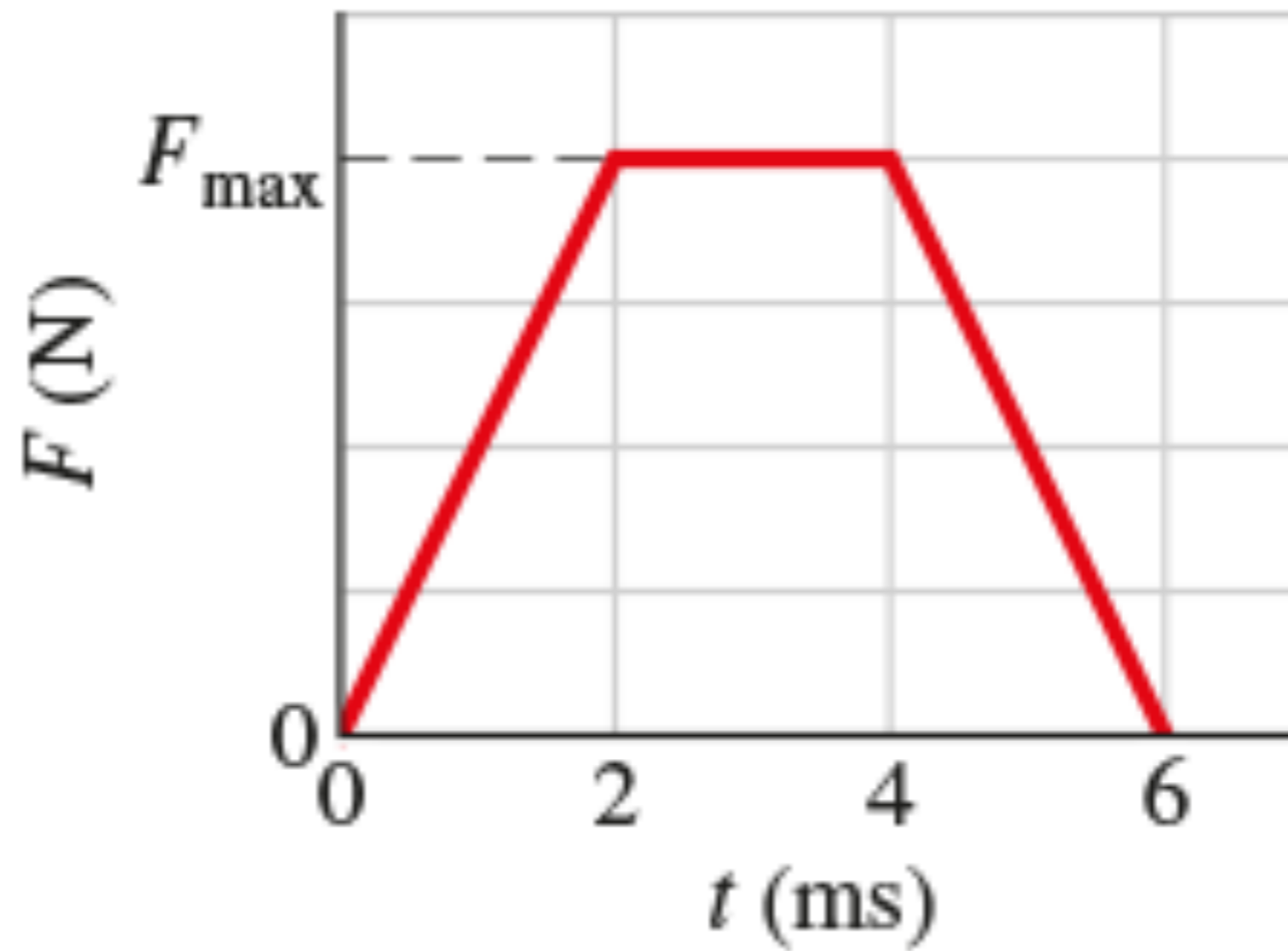


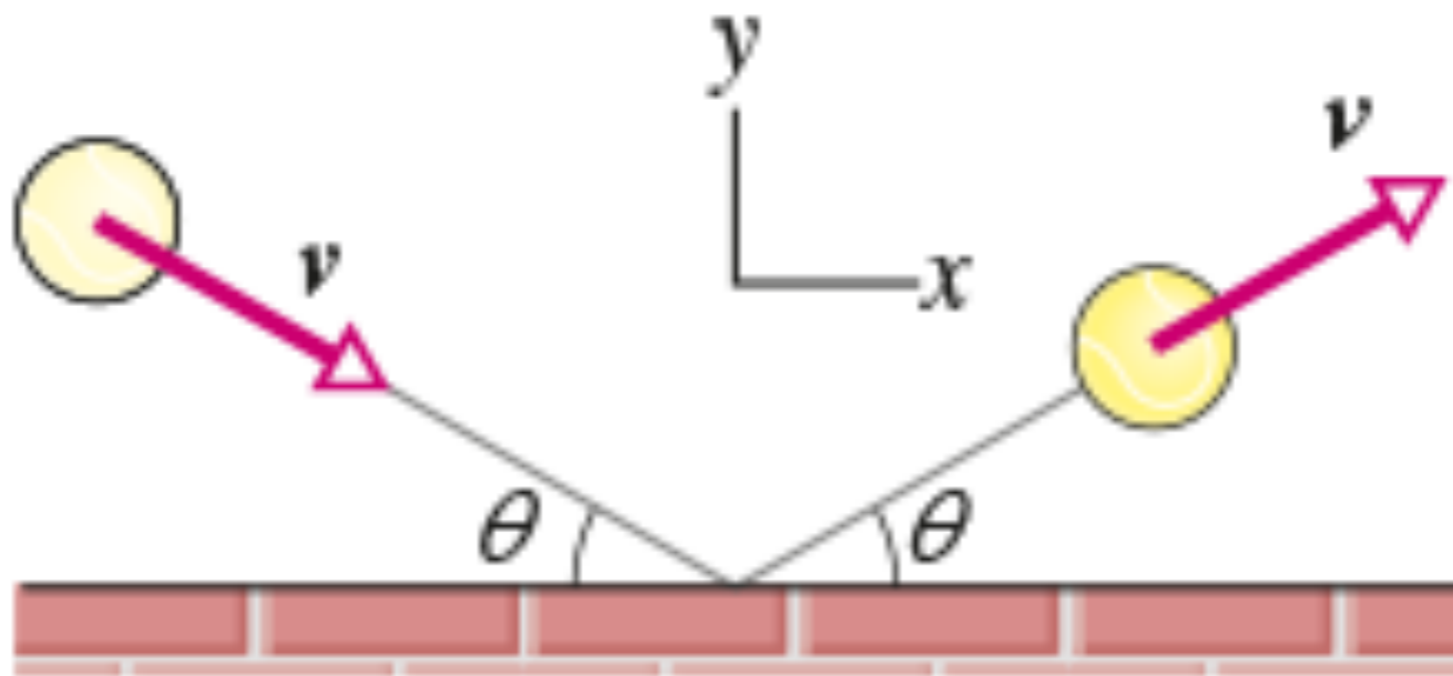


George Long/Getty Images, Inc.

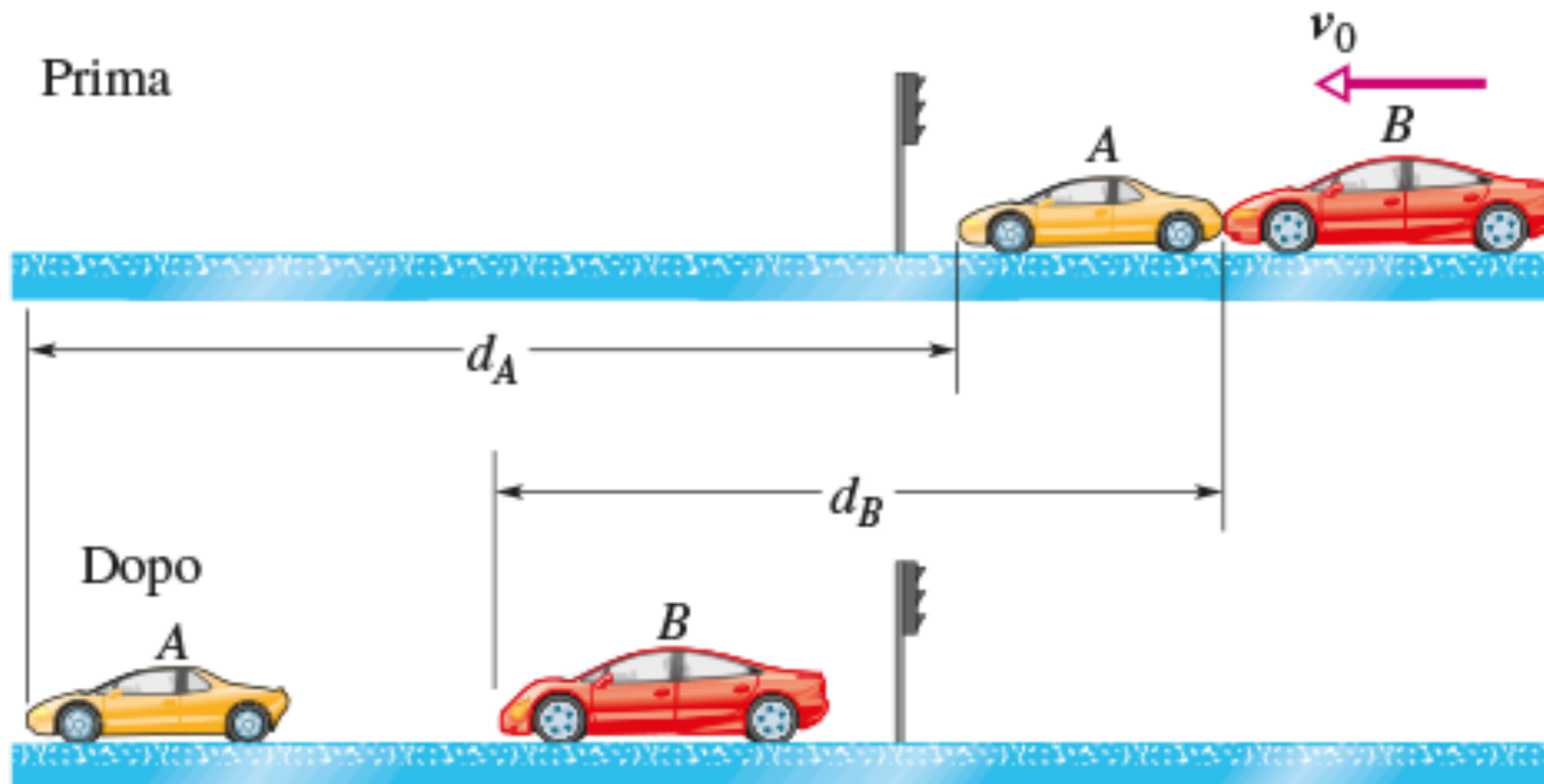




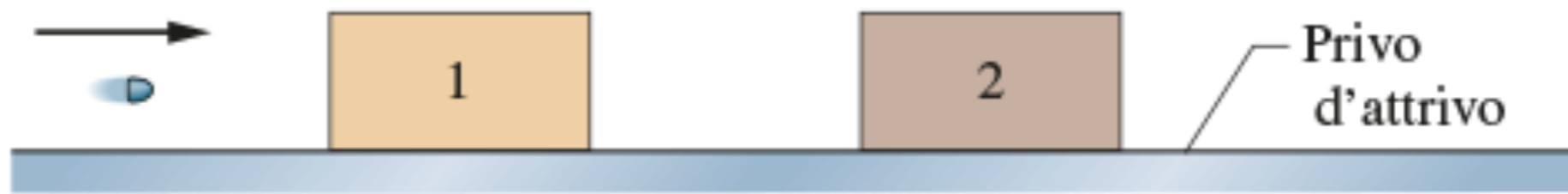




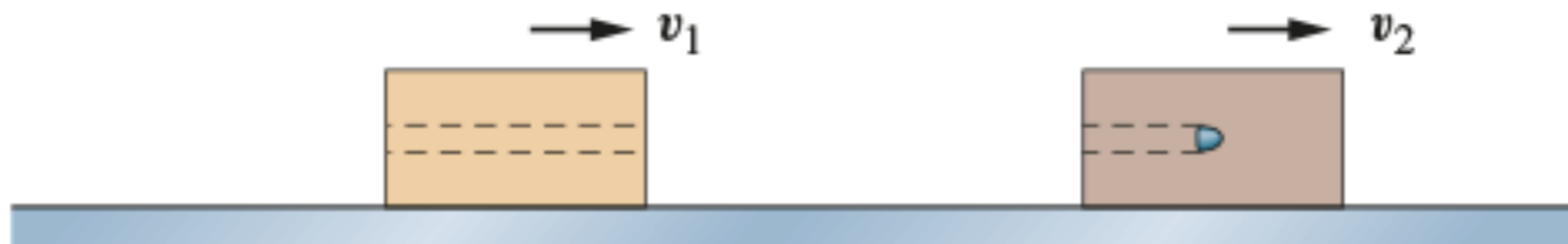








(a)



(b)

