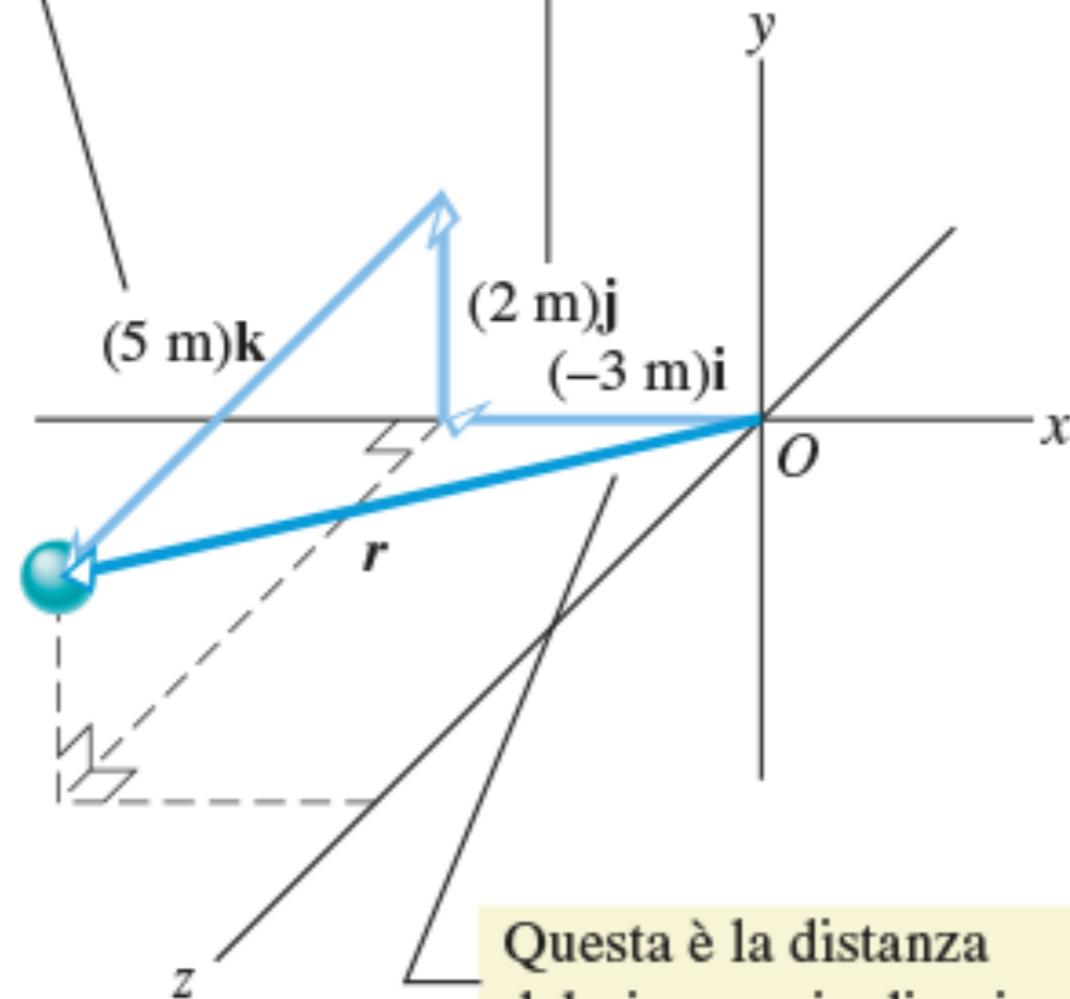


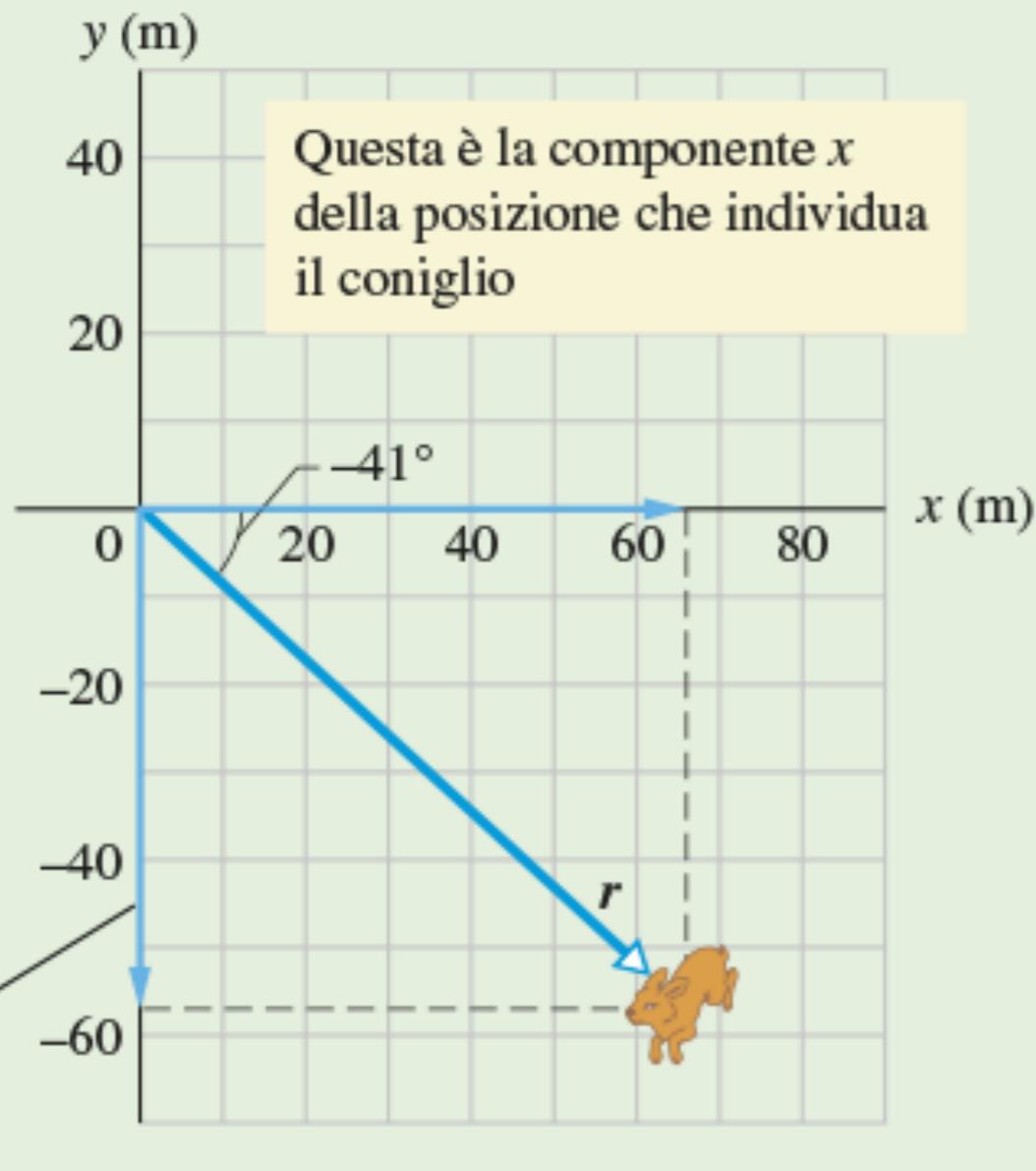
Questa è la distanza di  $P$   
dal piano  $xy$  in direzione di  $z$

Questa è la distanza  
dal piano  $xz$  in direzione di  $y$

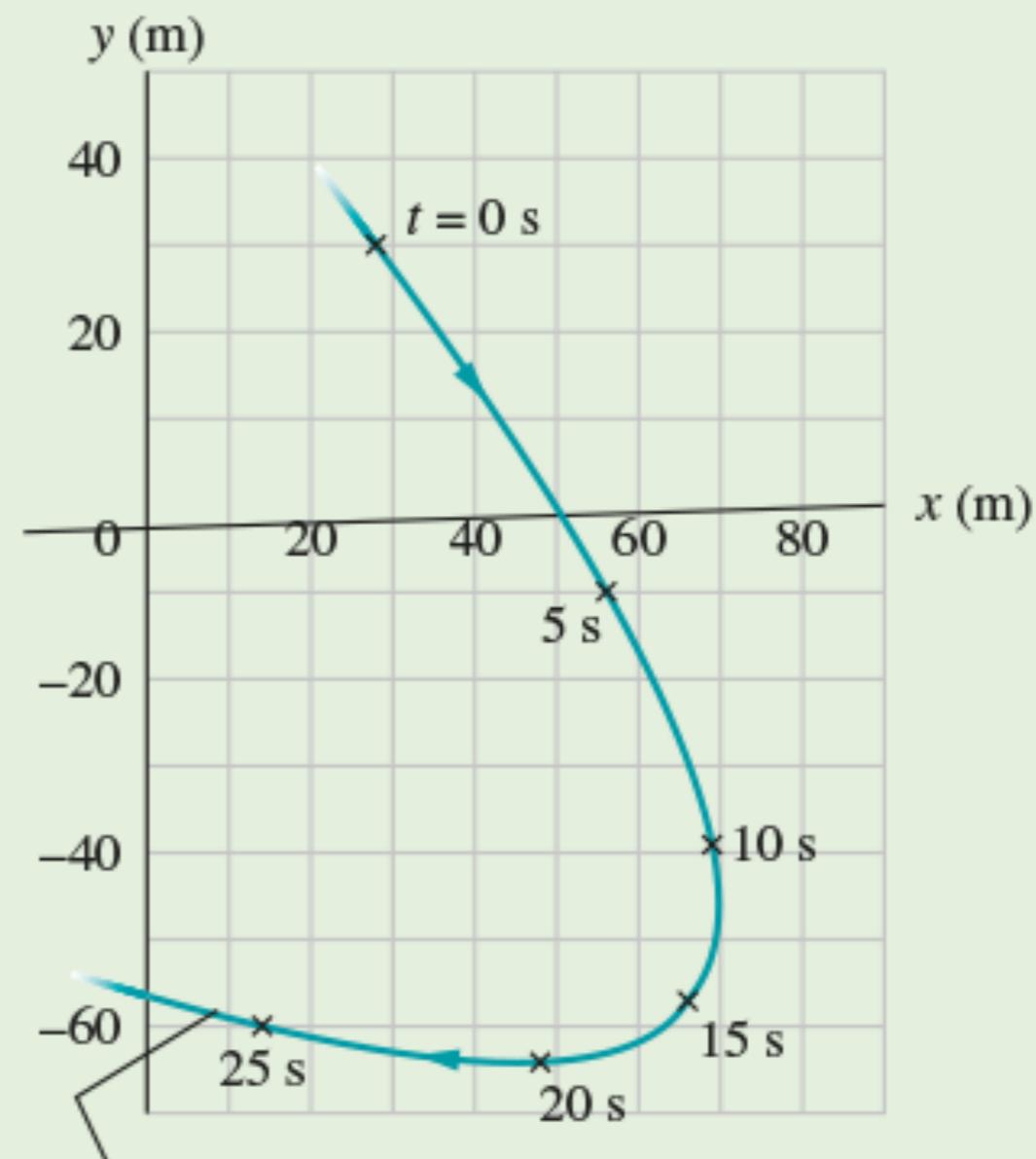


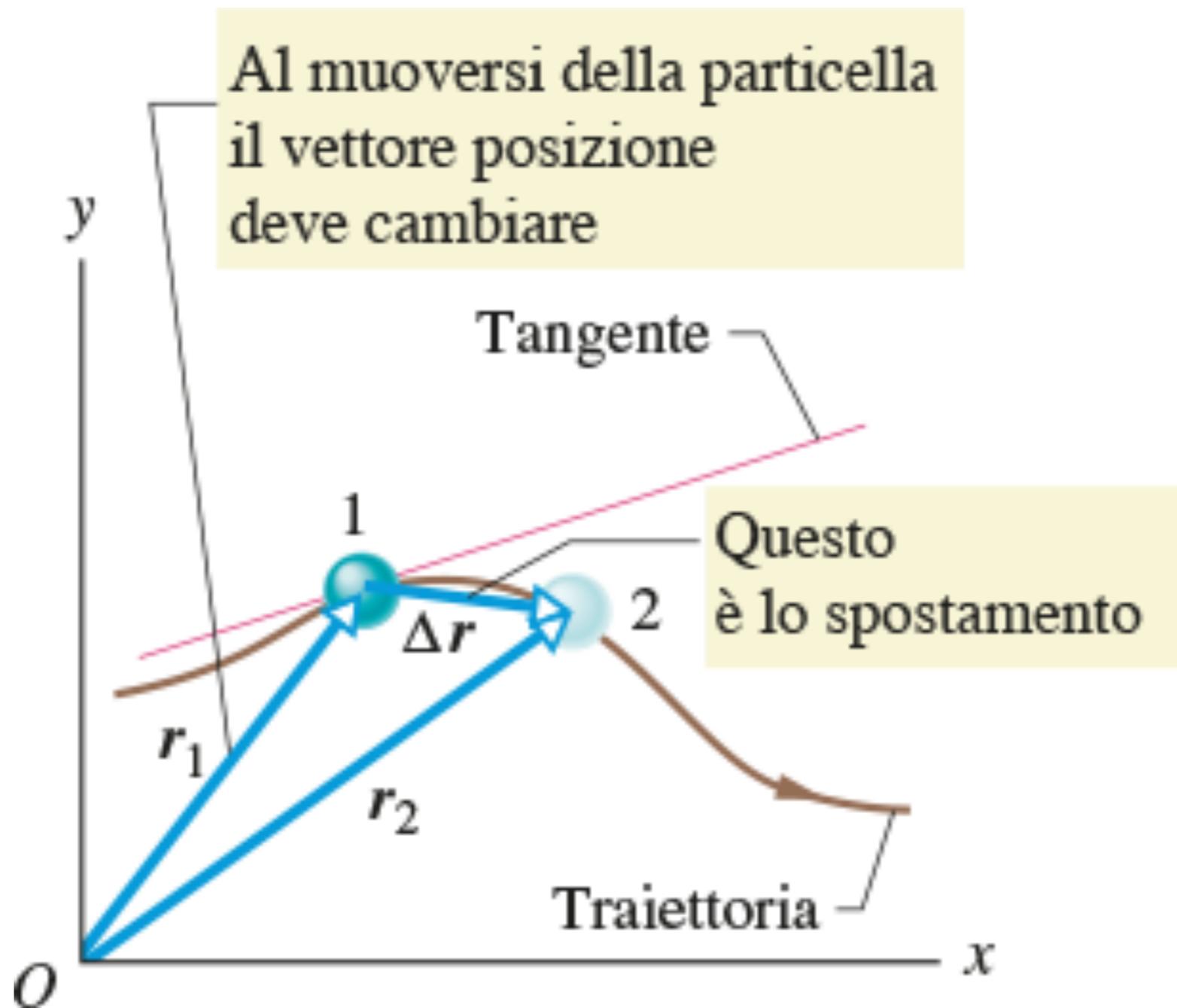
Questa è la distanza  
dal piano  $yz$  in direzione di  $x$

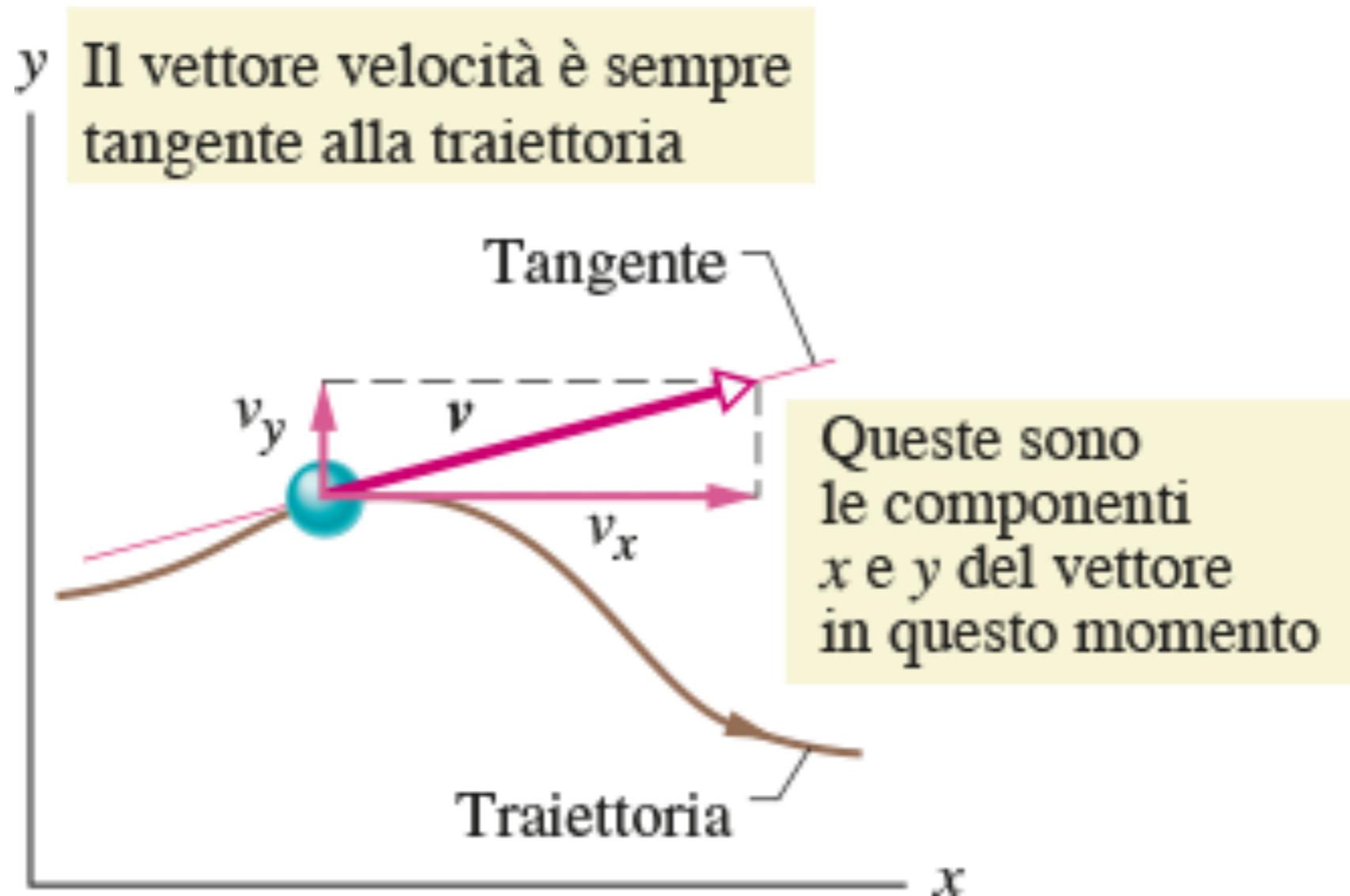
(a)

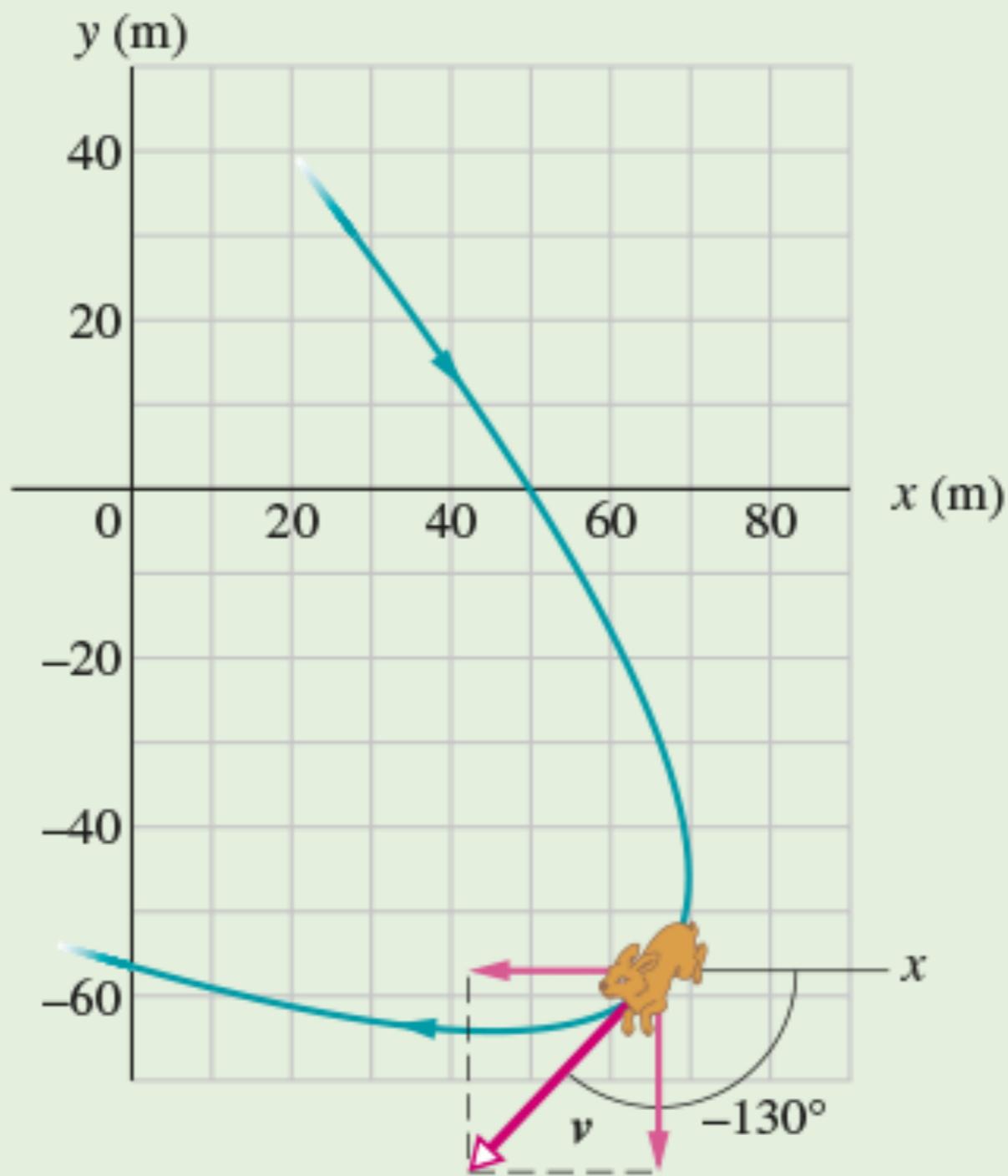


(b)



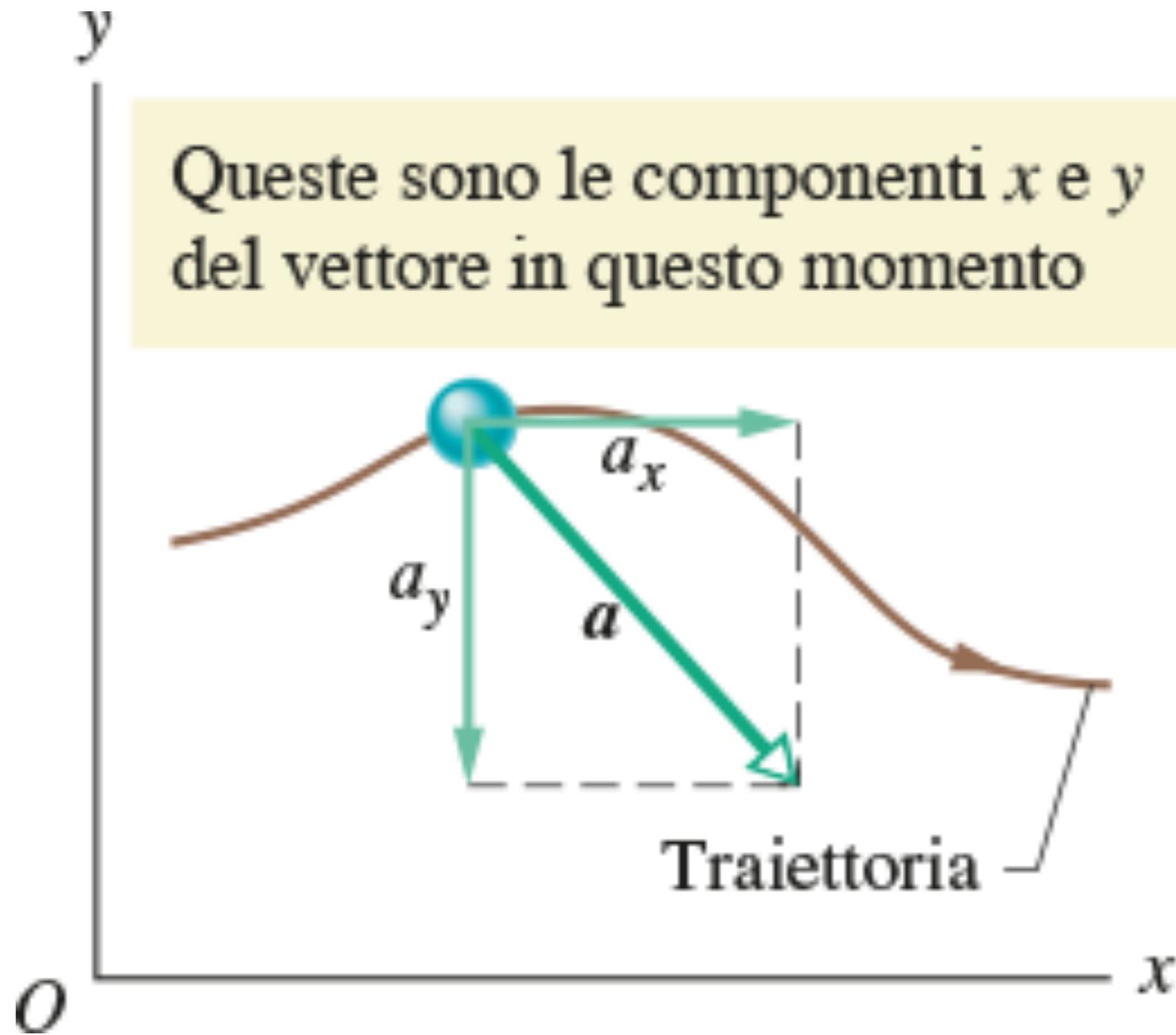


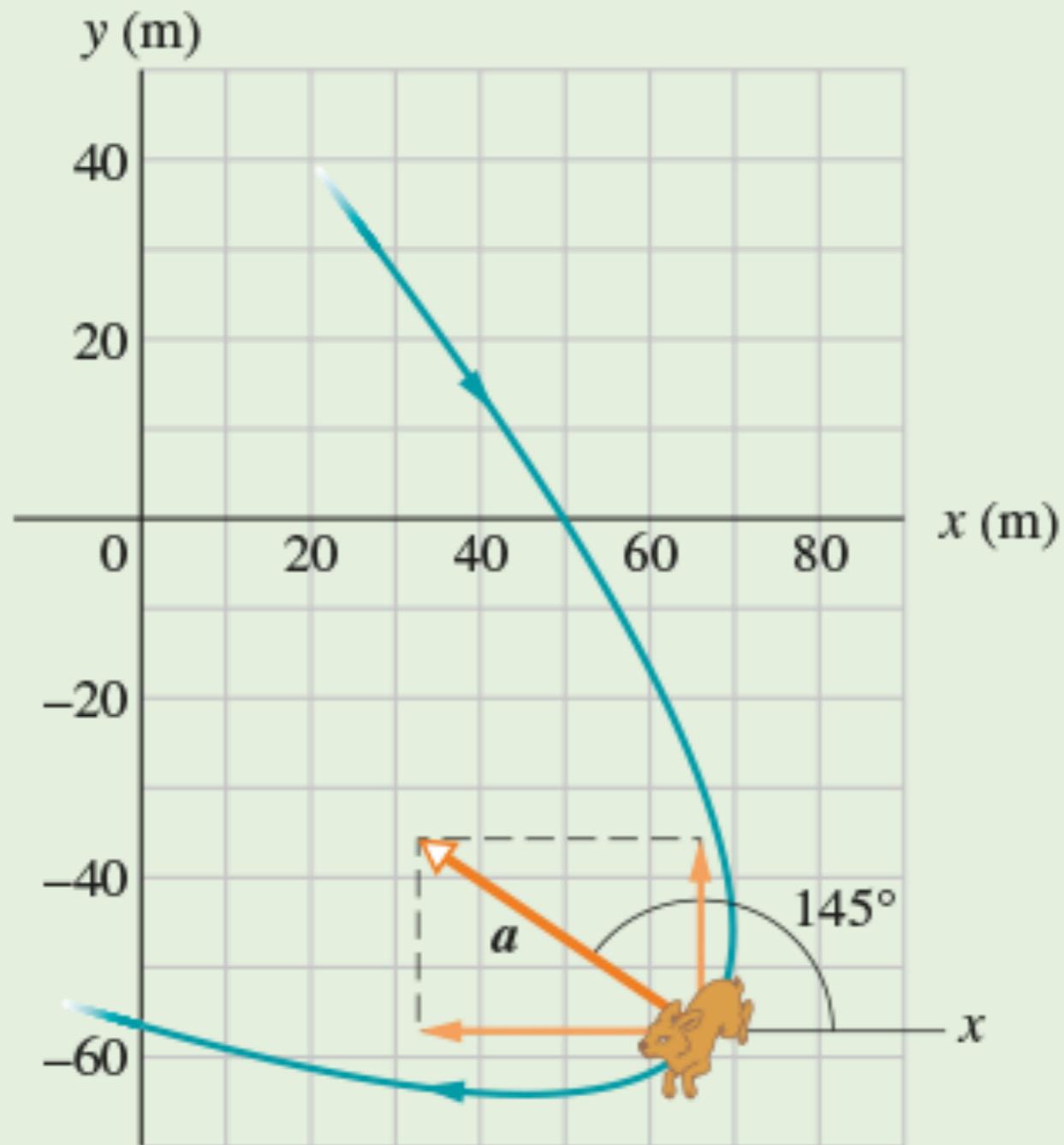




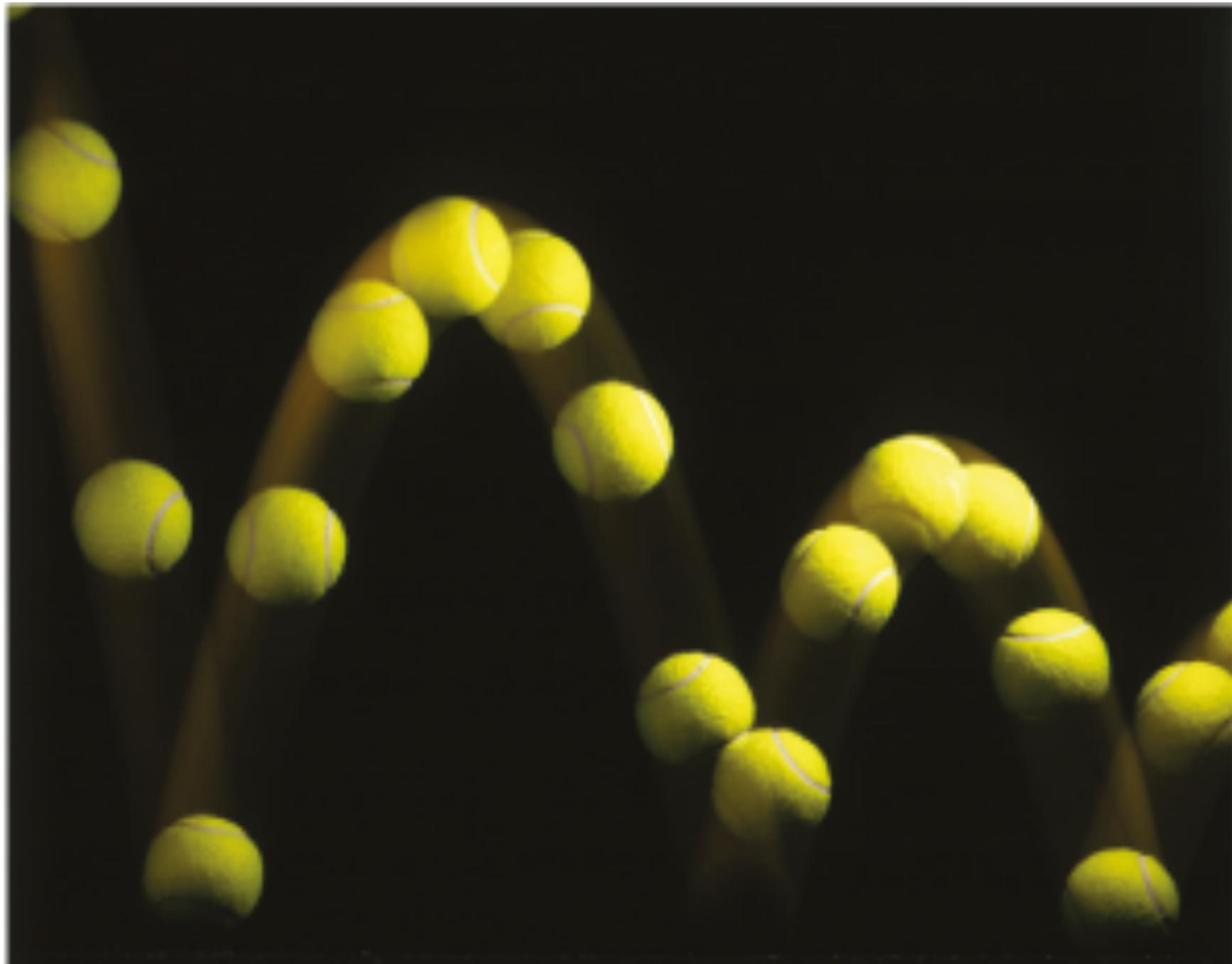
Queste sono le componenti  $x$  e  $y$  del vettore in questo momento

Queste sono le componenti  $x$  e  $y$  del vettore in questo momento

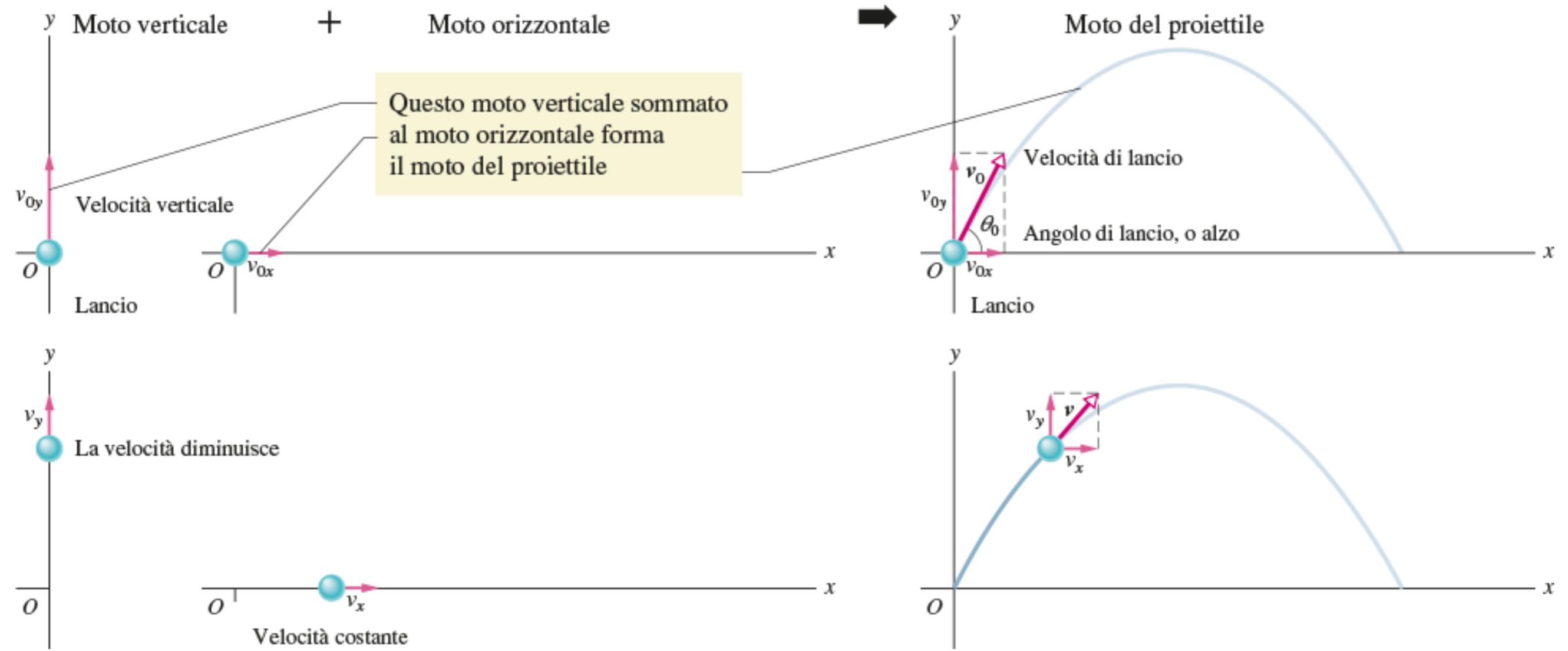
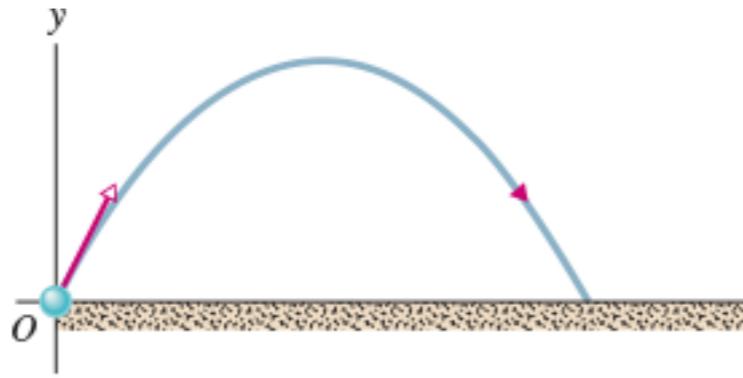


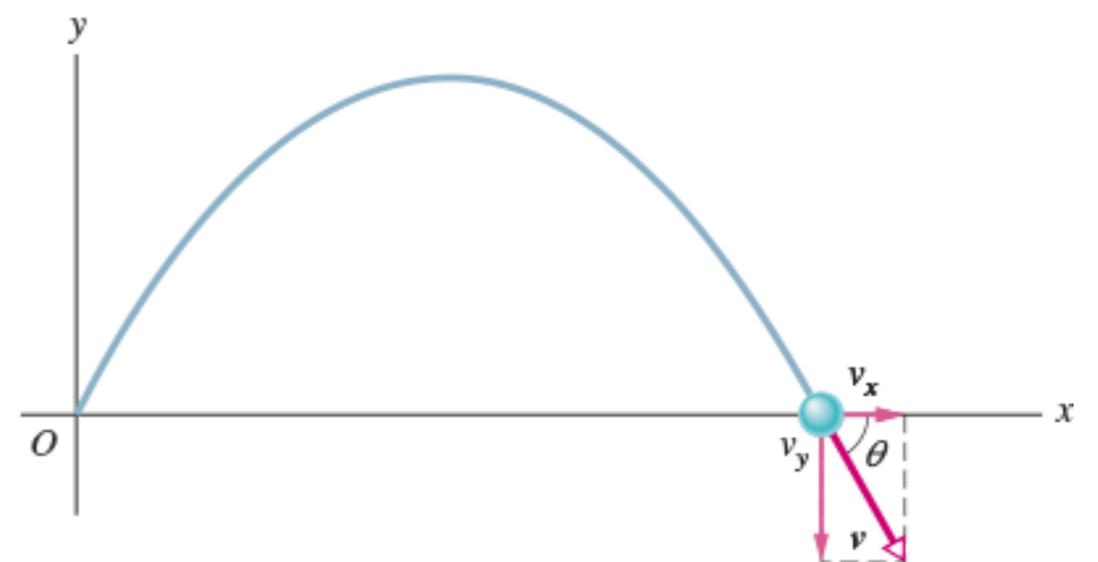
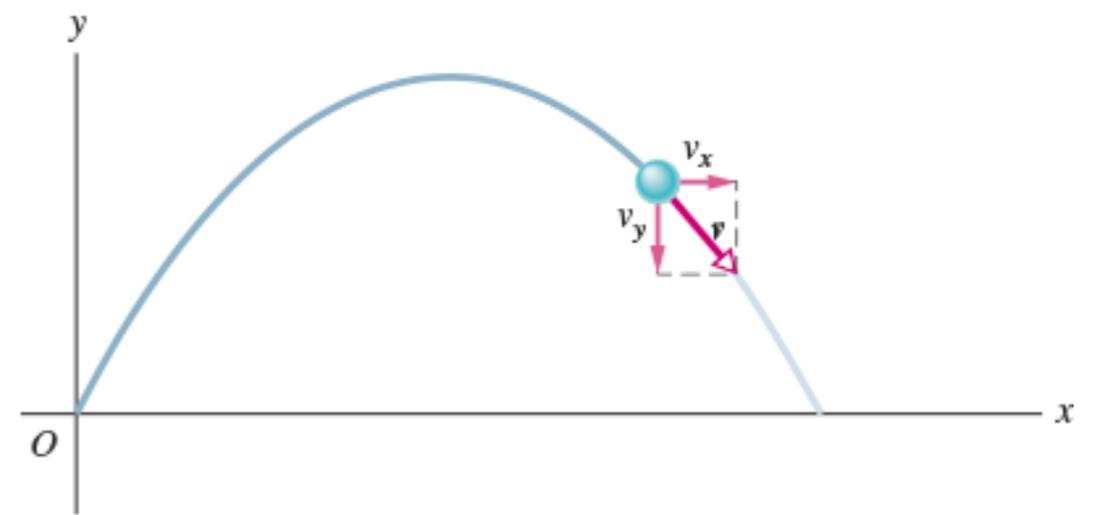
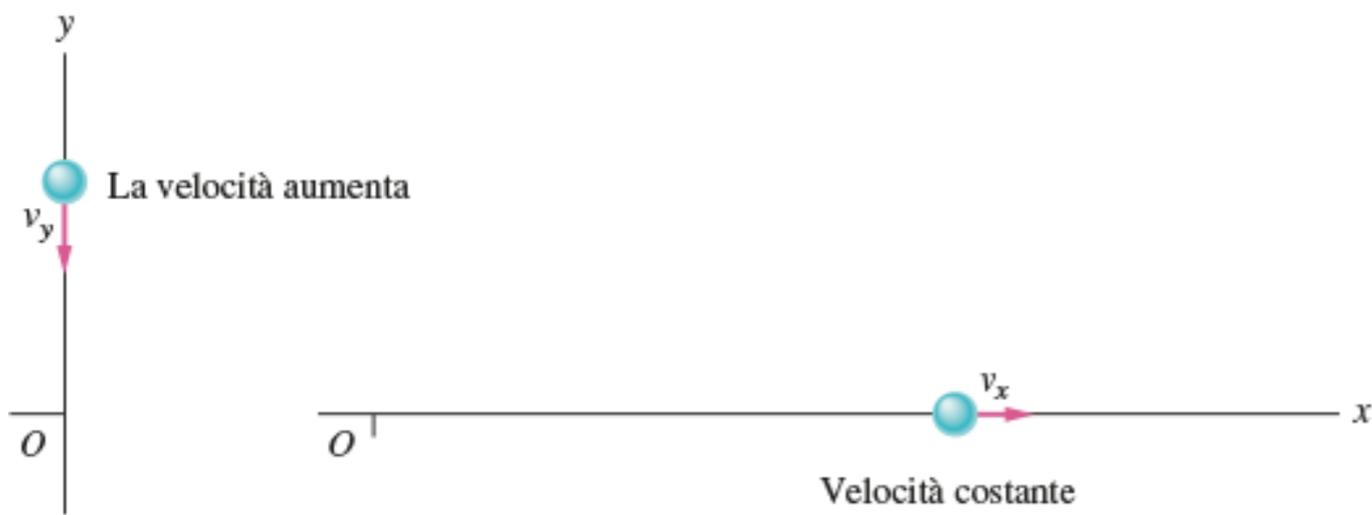
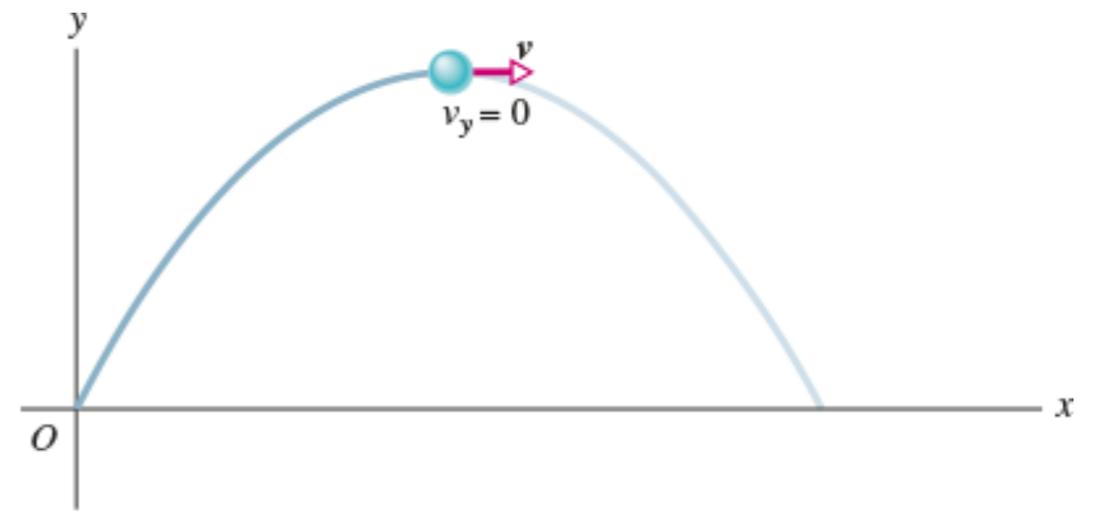
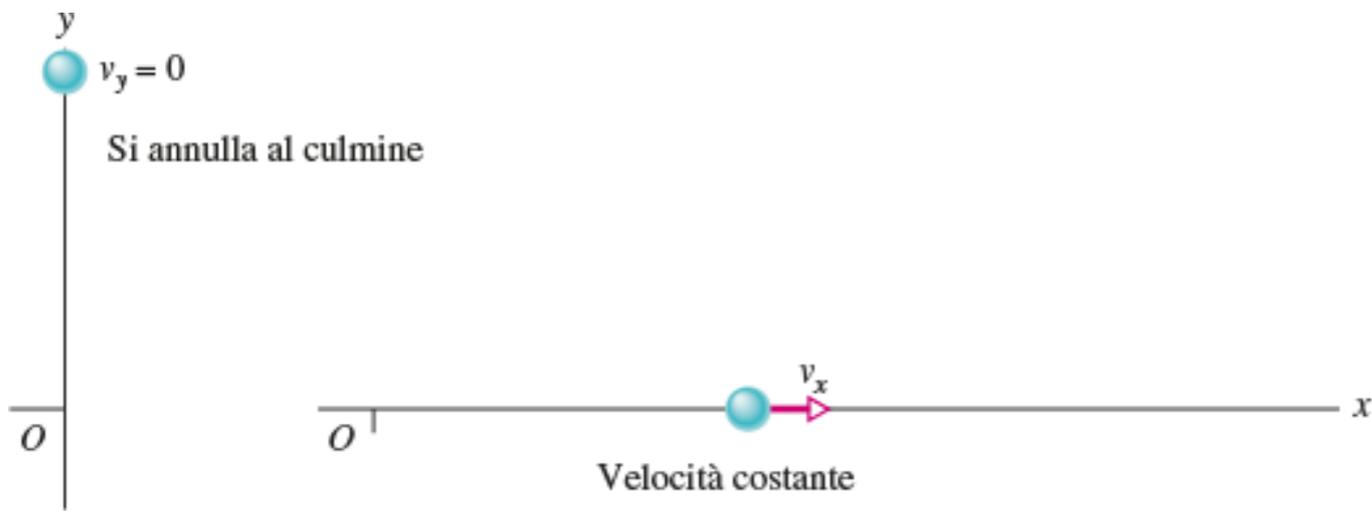


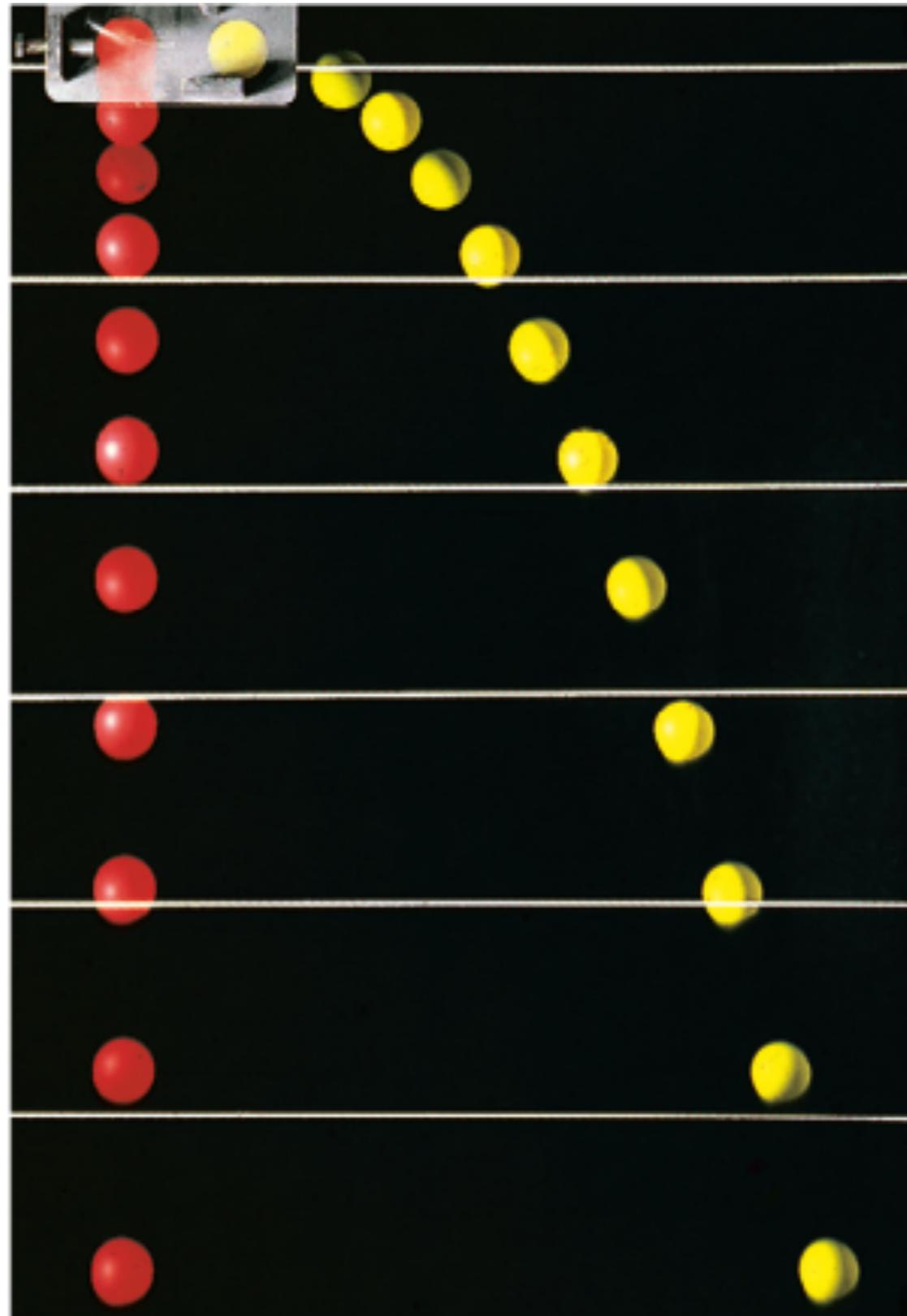
Queste sono le componenti  $x$  e  $y$  del vettore in questo momento



Richard Megna/Fundamental Photographs

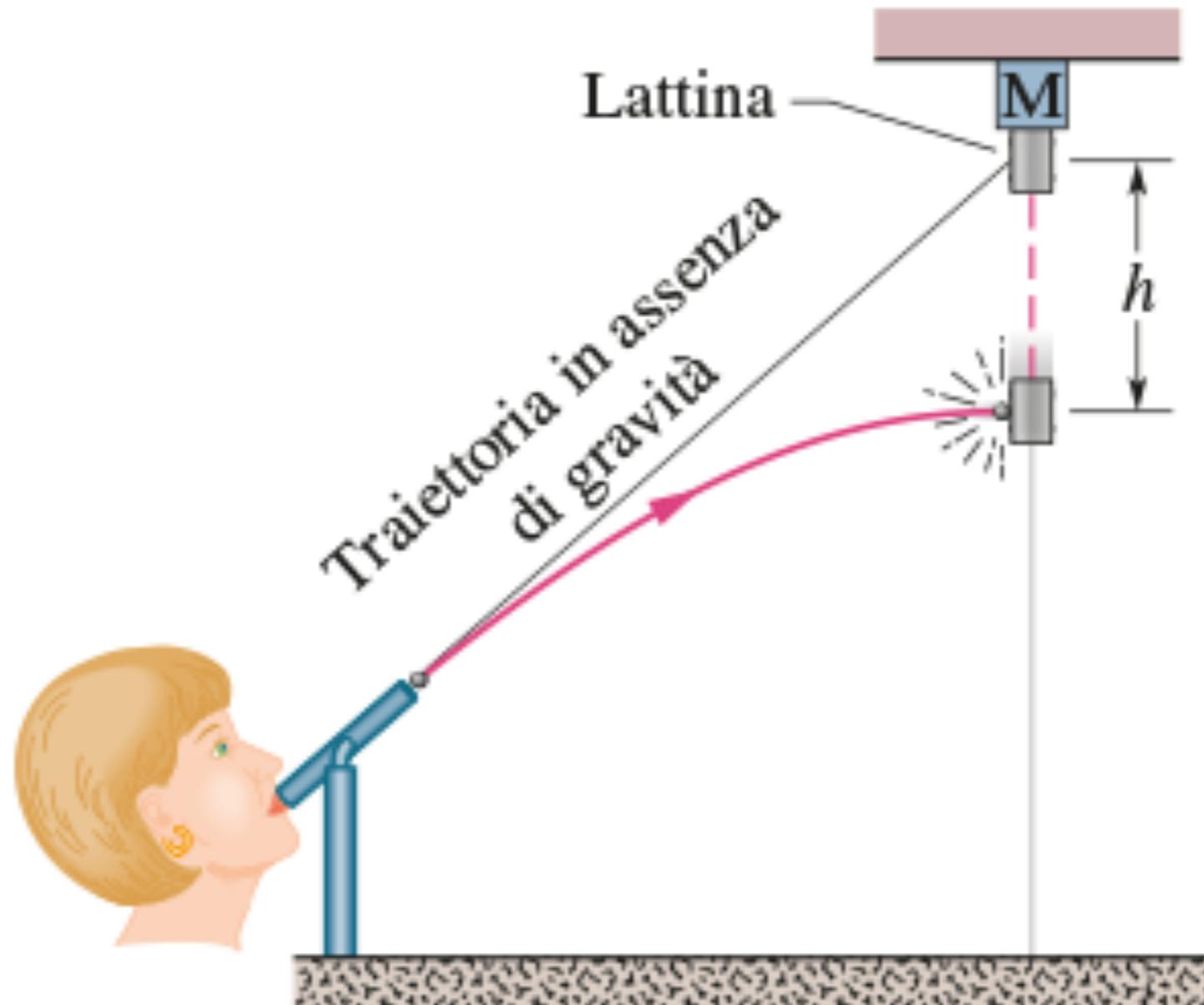






Richard Megna/Fundamental Photographs

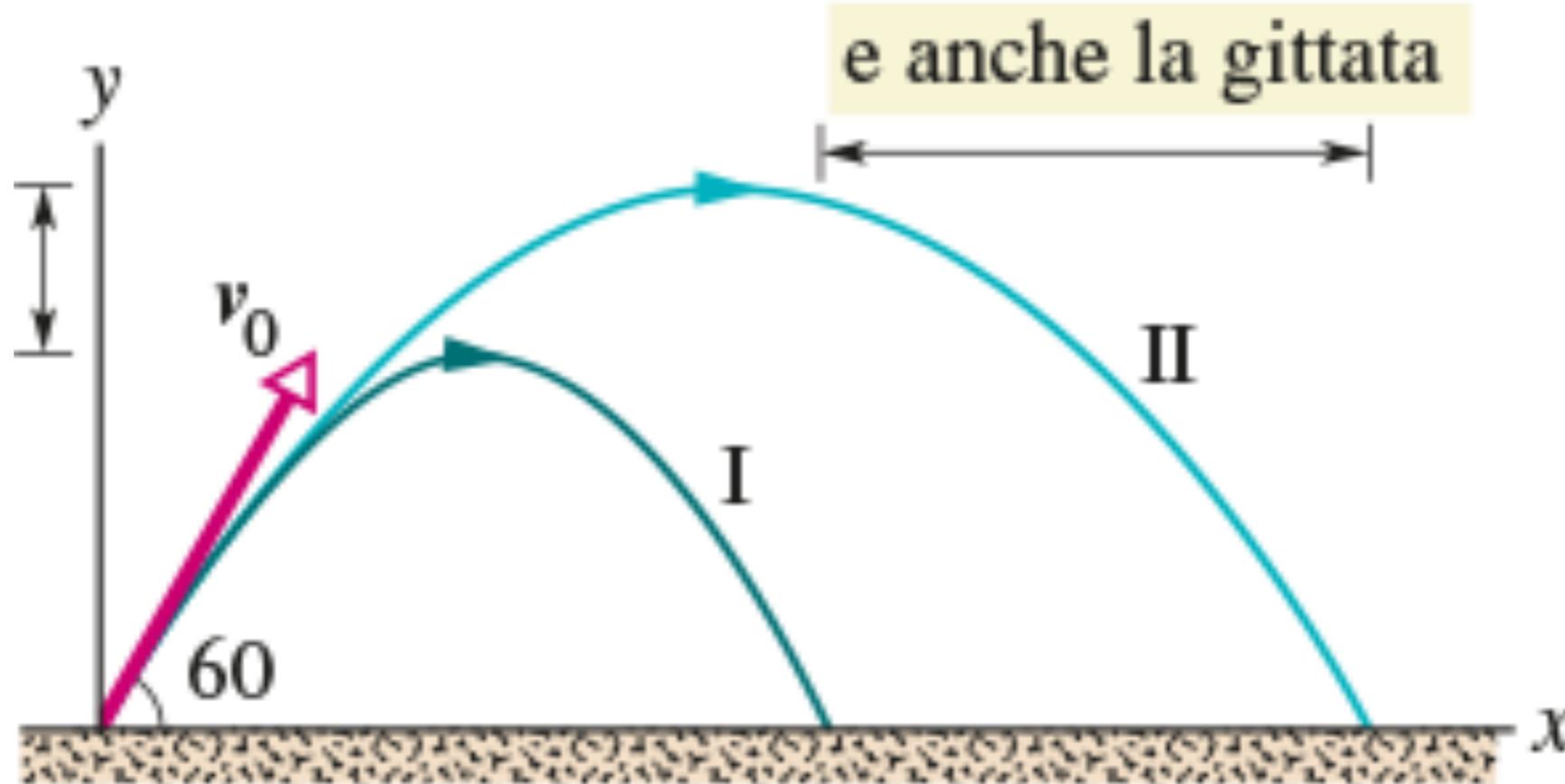
La pallina e la lattina percorrono in caduta la medesima distanza verticale  $h$





Jamie Budge

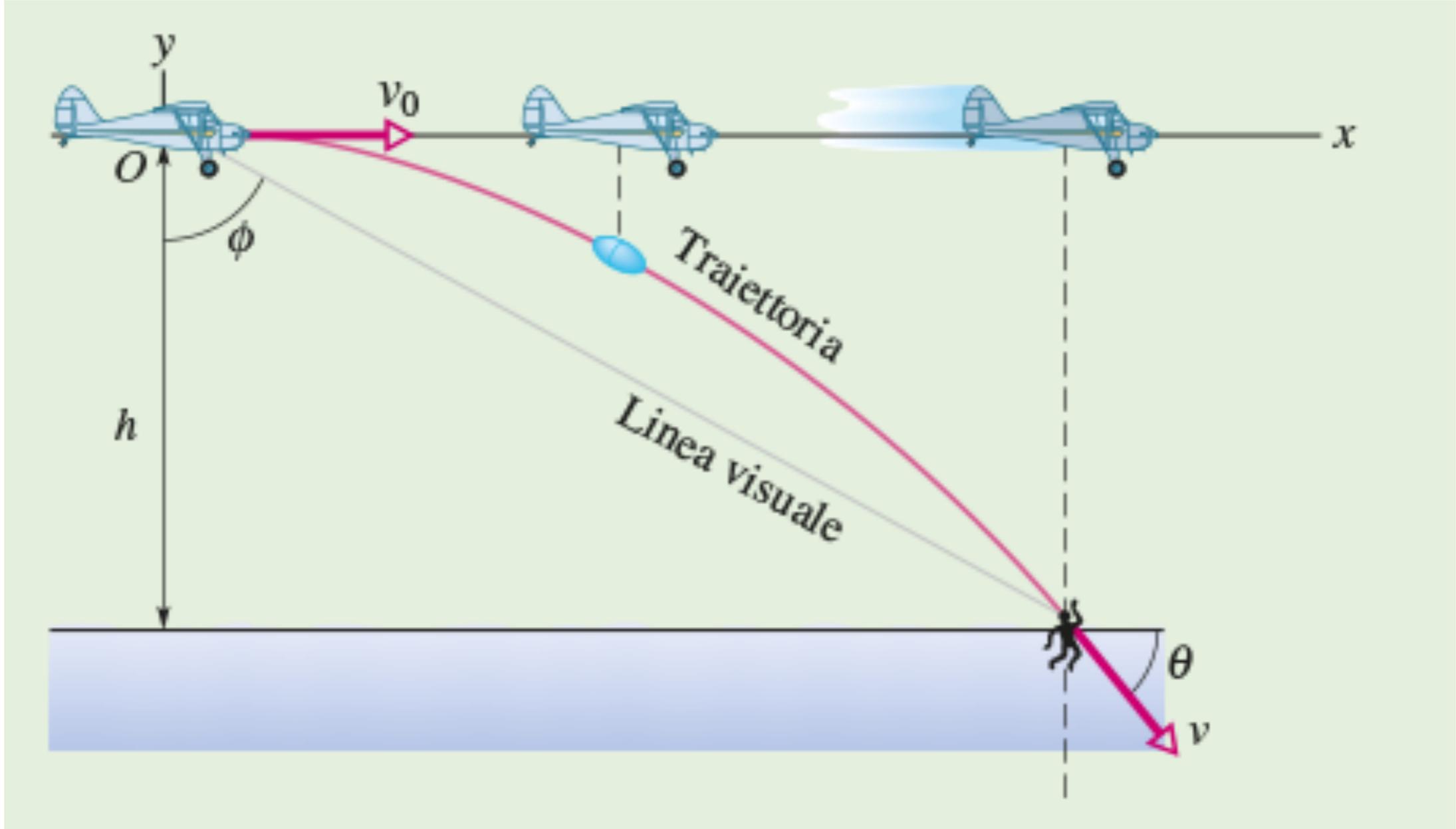
La presenza dell'aria  
riduce la quota massima

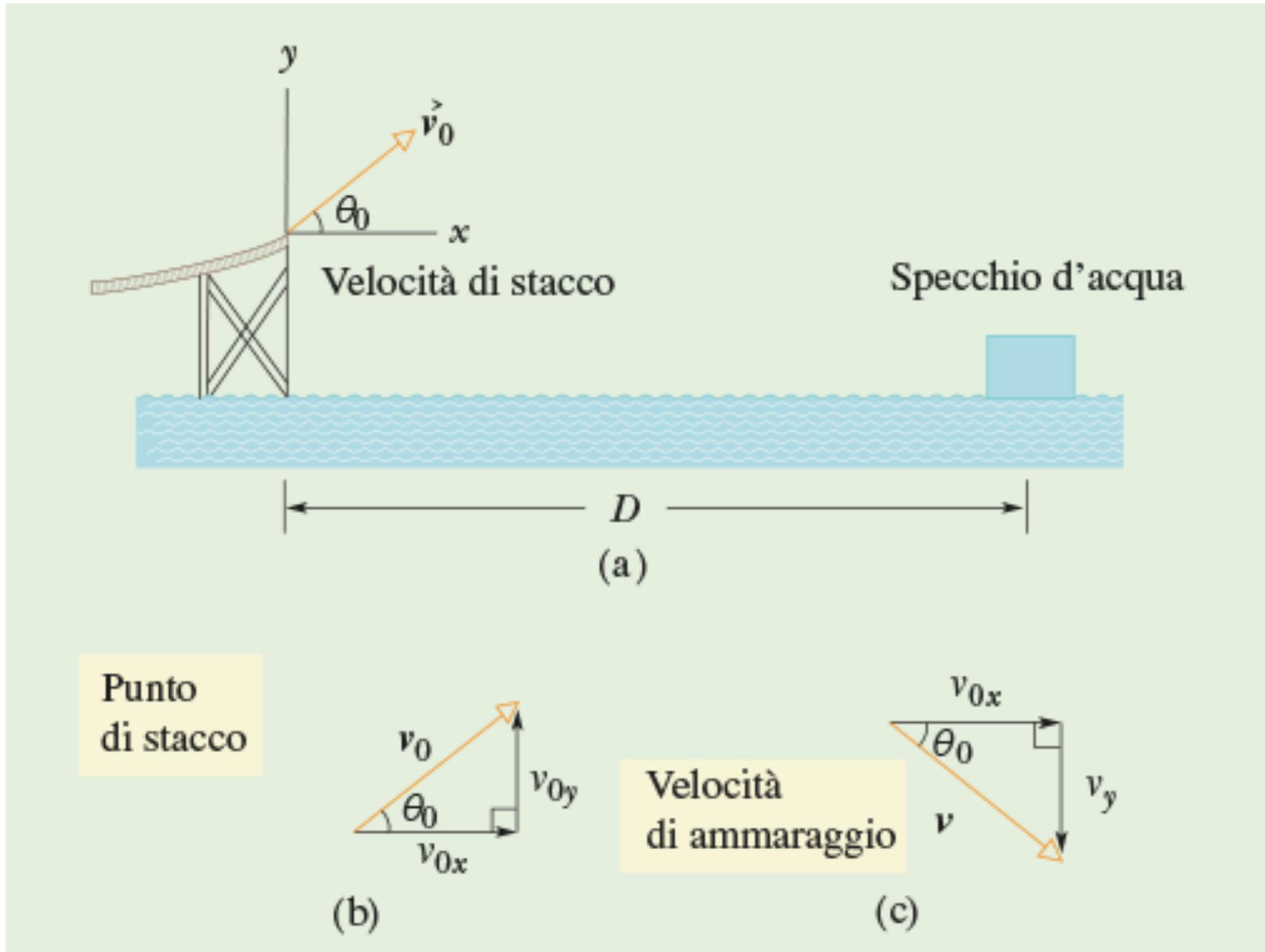


**TABELLA 4.1** Due palle in volo<sup>a</sup>

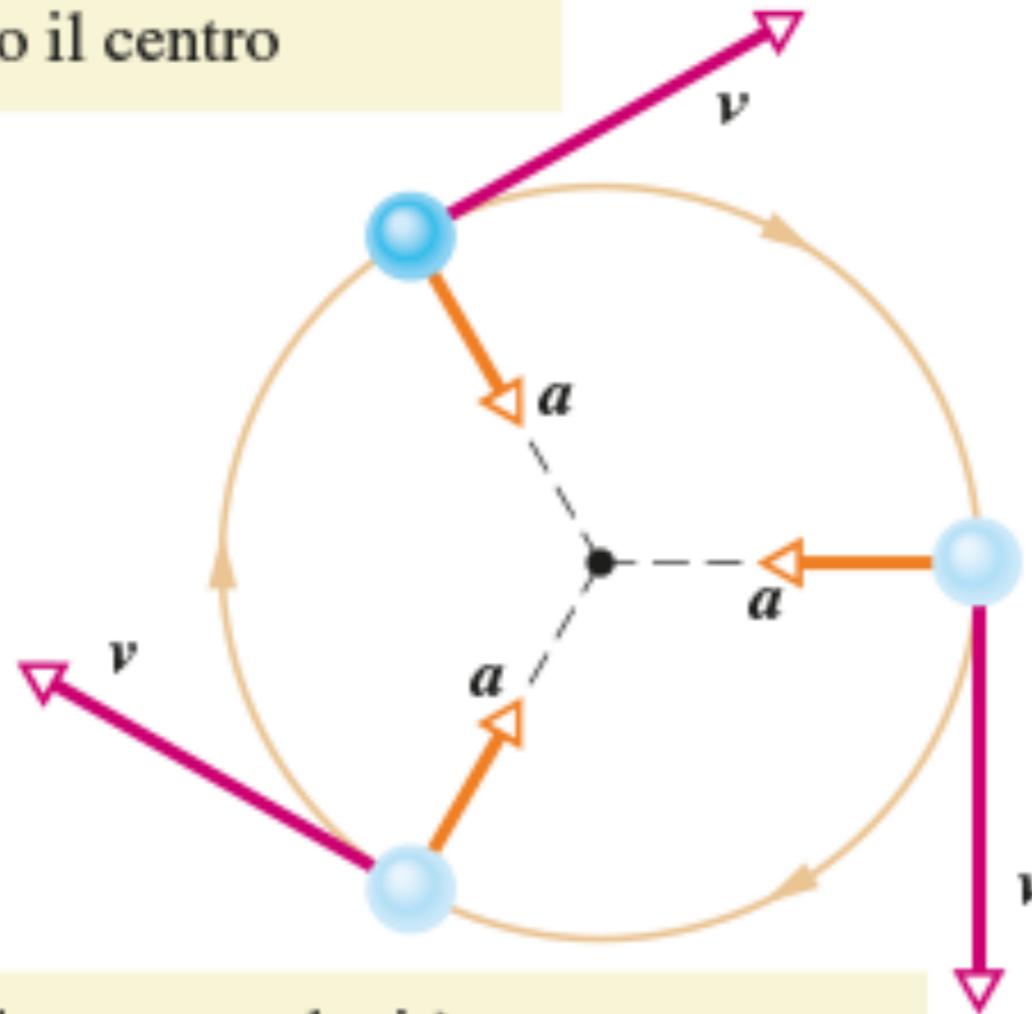
	Percorso I (aria)	Percorso II (vuoto)
Gittata	98,5 m	177 m
Altezza massima	53,0 m	76,8 m
Tempo di volo	6,6 s	7,9 s

<sup>a</sup> Si veda la figura 4.13. L'angolo di lancio è di  $60^\circ$  e la velocità iniziale di 44,7 m/s.

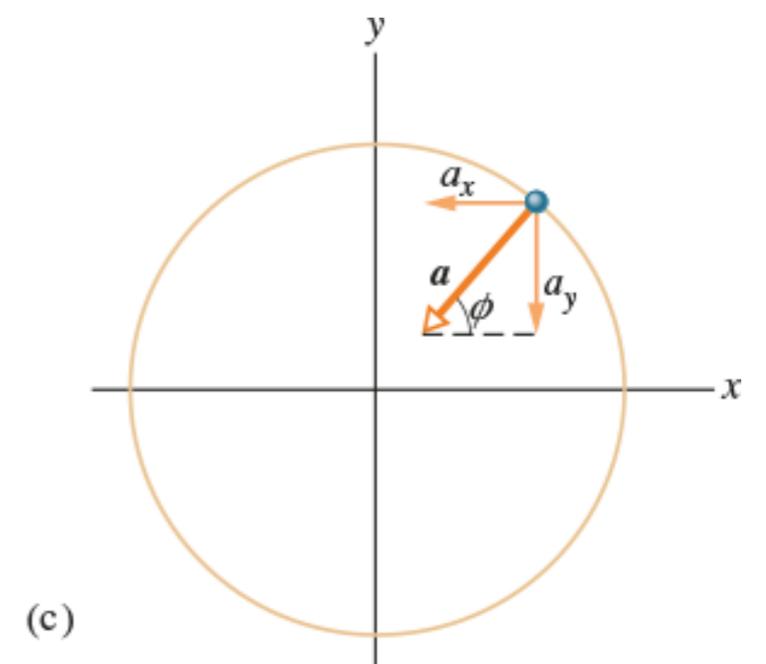
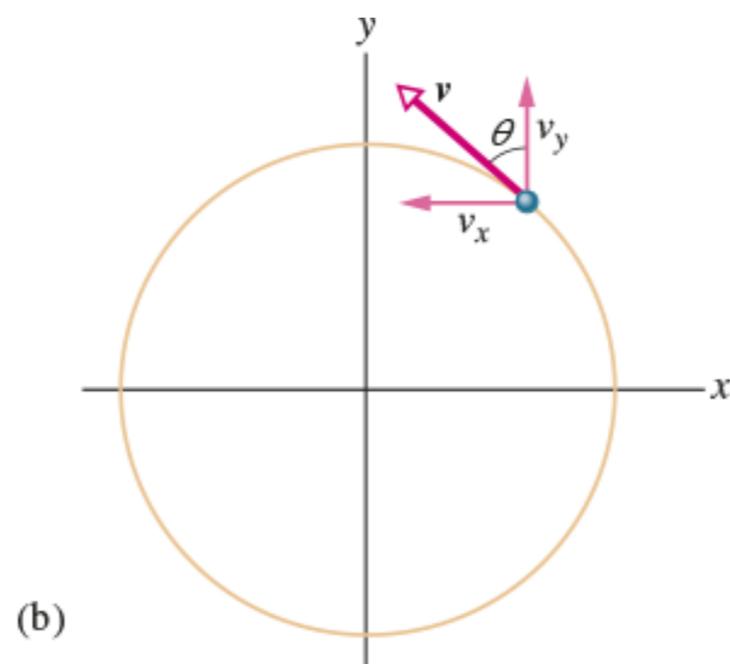
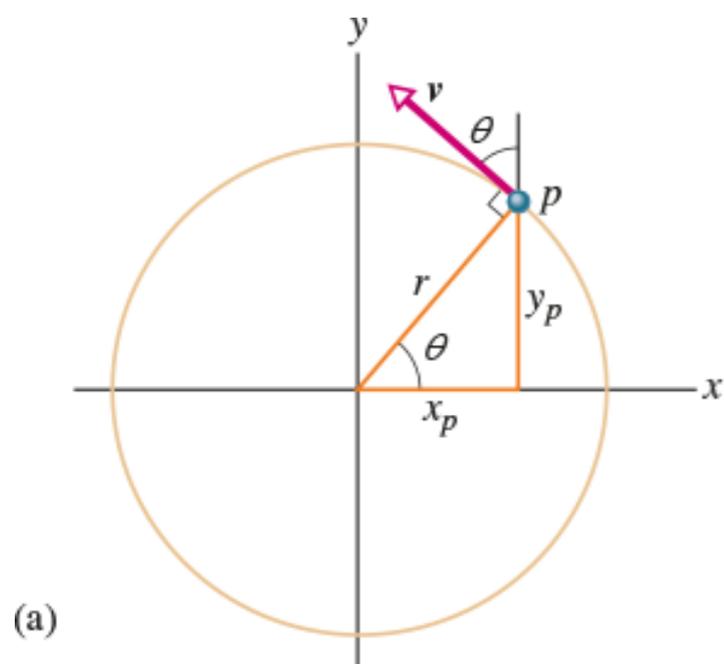




Il vettore accelerazione  
è sempre rivolto  
verso il centro

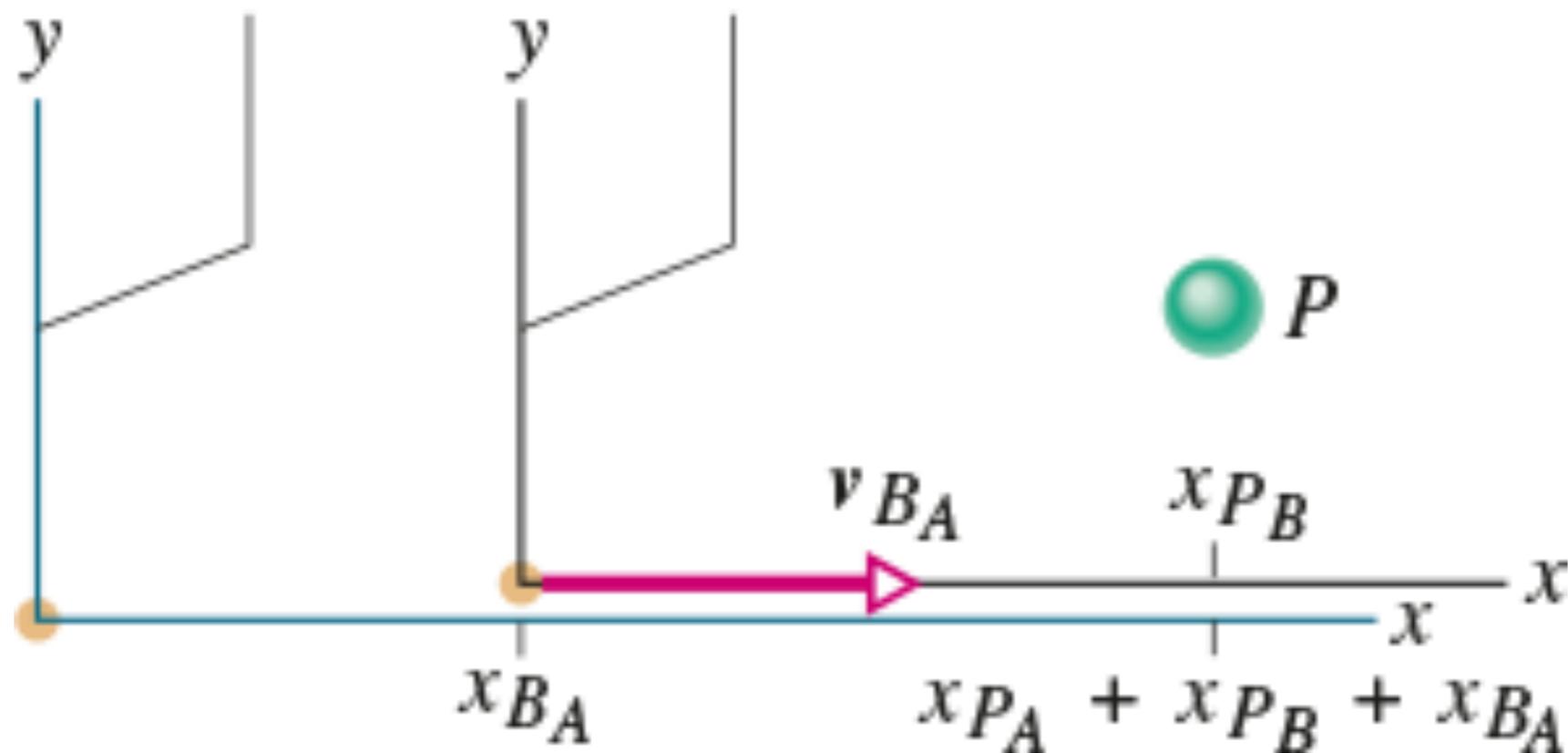


Il vettore velocità  
è sempre tangente alla traiettoria

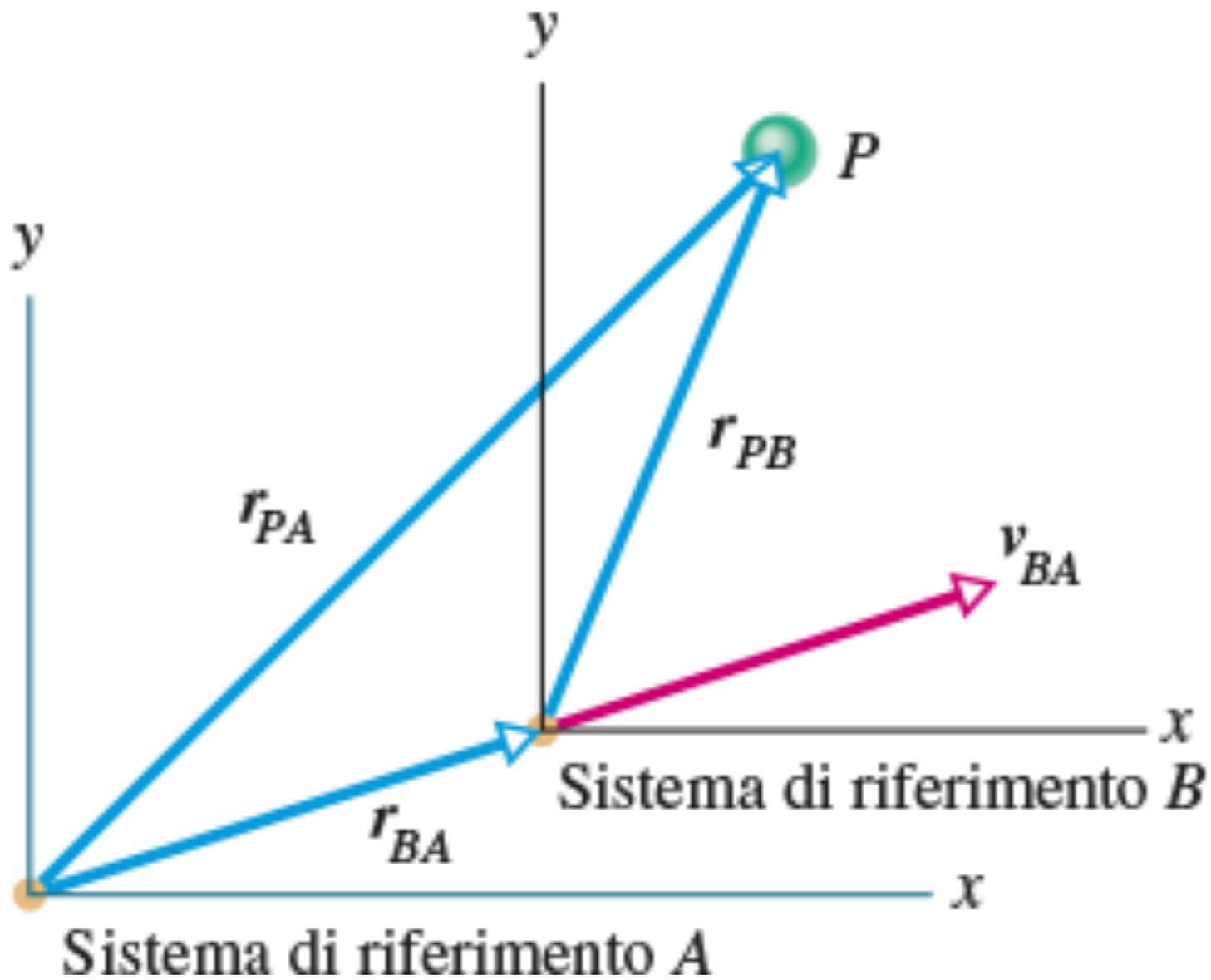


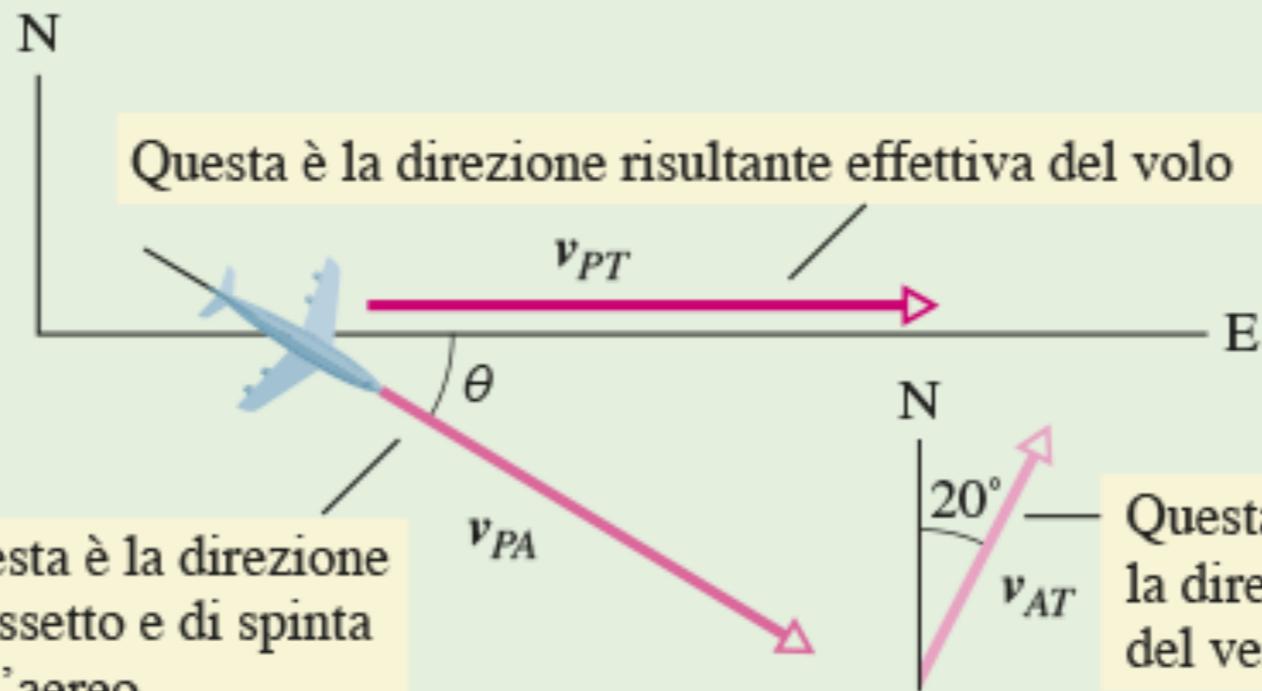
Il riferimento  $B$  si muove rispetto ad  $A$   
mentre entrambi osservano  $P$

Sistema di riferimento  $A$       Sistema di riferimento  $B$

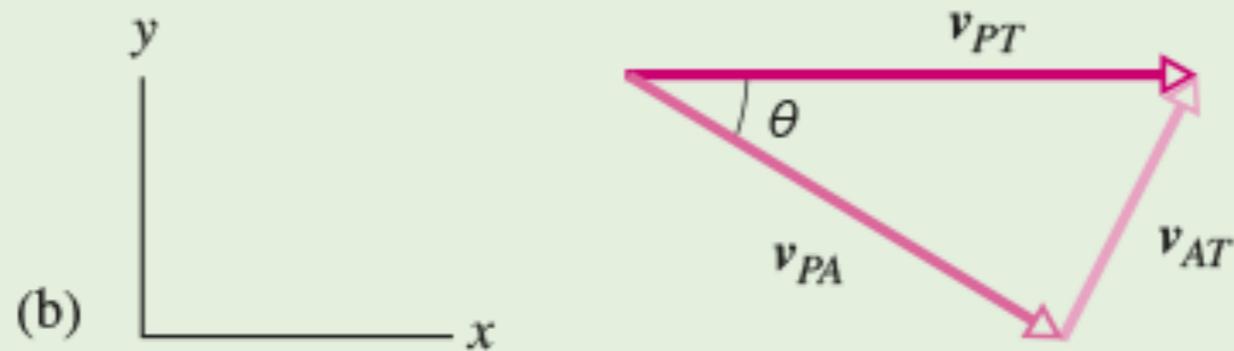


$$v_{PA} = v_{PB} + v_{BA},$$



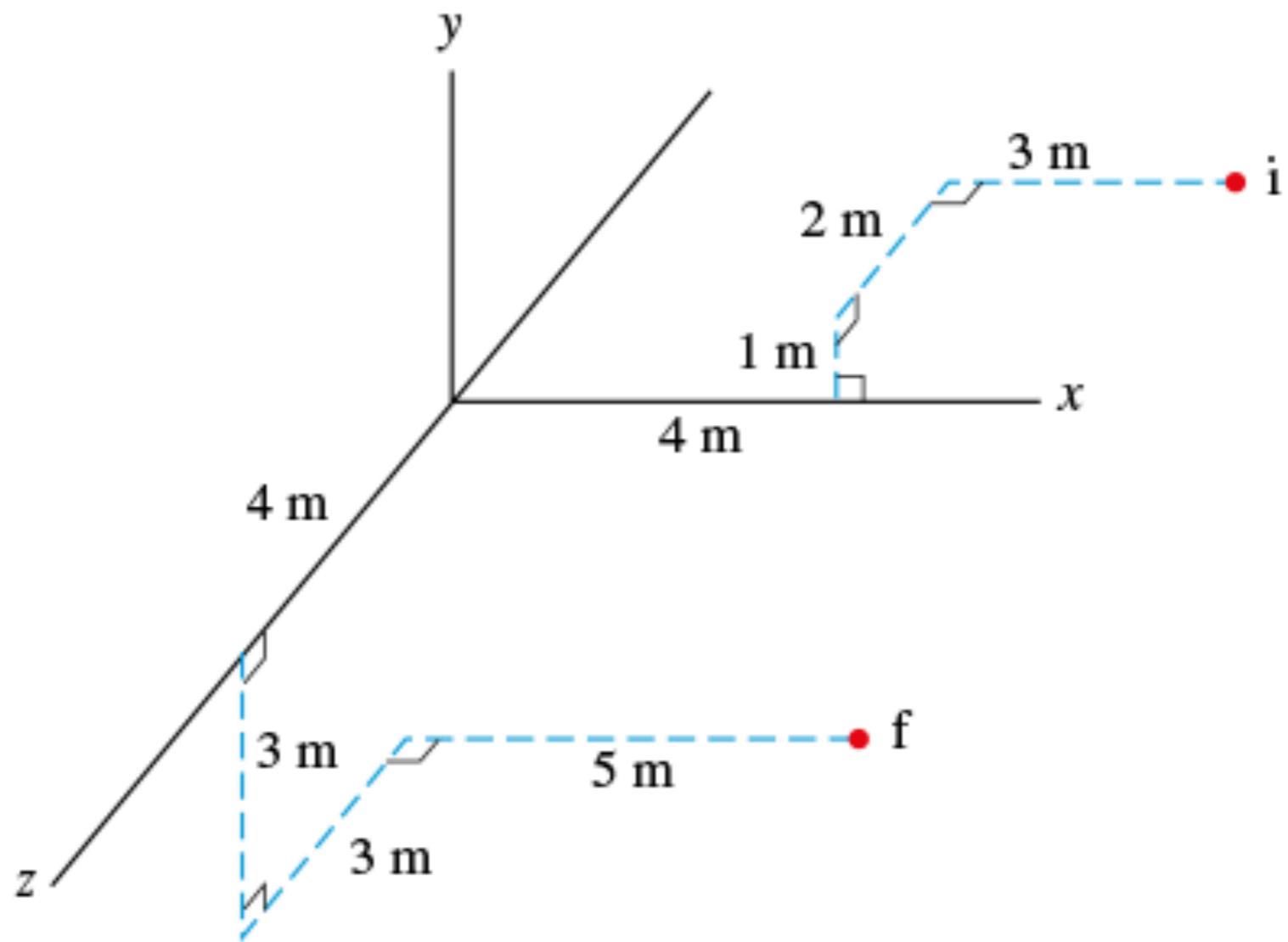


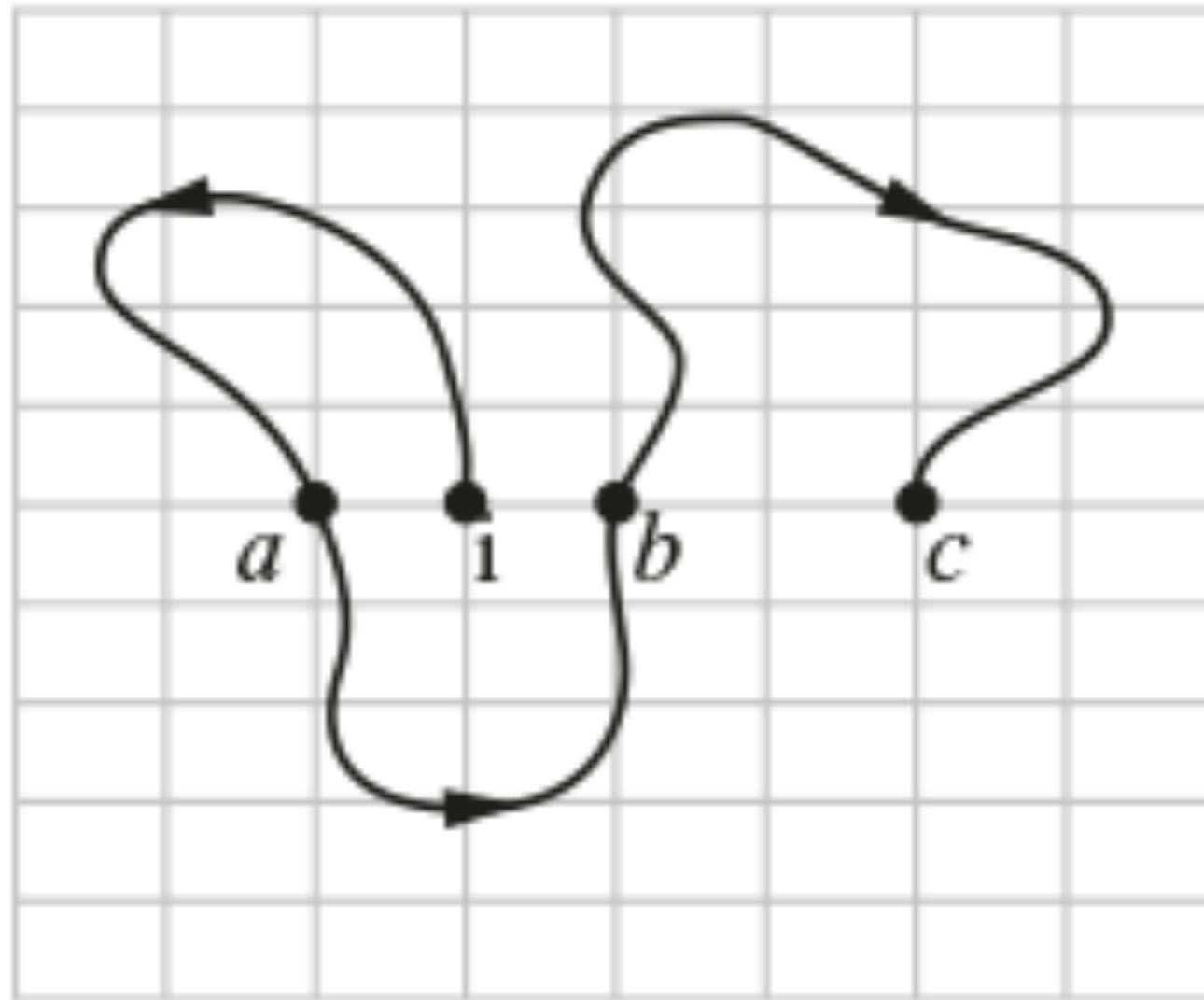
(a)

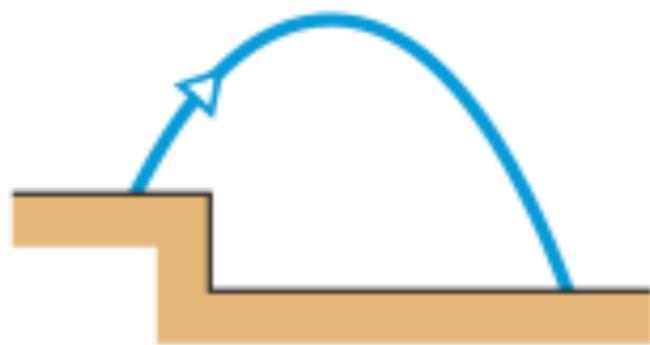


(b)

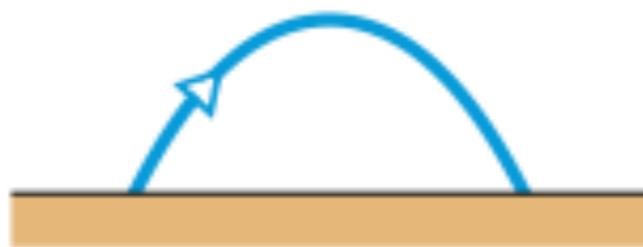
La direzione effettiva è data dalla somma vettoriale degli altri due vettori







(a)



(b)



(c)

