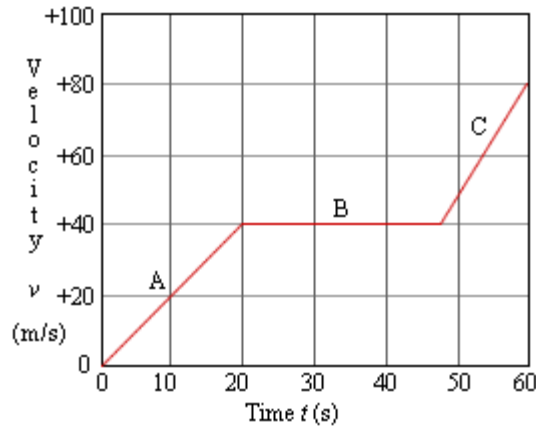




m/s<sup>2</sup> (during B)  
 m/s<sup>2</sup> (during C)



5. CJ6 2.P.068. [294480] A hot-air balloon is rising upward with a constant speed of 2.00 m/s. When the balloon is 2.70 m above the ground, the balloonist accidentally drops a compass over the side of the balloon. How much time elapses before the compass hits the ground?

s

6. CJ6 2.P.078. [239447] A roof tile falls from rest from the top of a building. An observer inside the building notices that it takes 0.16 s for the tile to pass her window, whose height is 1.7 m. How far above the top of this window is the roof?

m

7. CJ6 3.P.008. [294527] A skateboarder, starting from rest, rolls down a 15.0 m ramp. When she arrives at the bottom of the ramp her speed is 6.90 m/s.

(a) Determine the magnitude of her acceleration, assumed to be constant.

m/s<sup>2</sup>

(b) If the ramp is inclined at 21.5° with respect to the ground, what is the component of her acceleration that is parallel to the ground?

m/s<sup>2</sup>

8. CJ6 3.P.012. [294494] A spacecraft is traveling with a velocity of  $v_{0x} = 4880$  m/s along the +x direction. Two engines are turned on for a time of 710 s. One engine gives the spacecraft an acceleration in the +x direction of  $a_x = 1.20$  m/s<sup>2</sup>, while the other gives it an acceleration in the +y direction of  $a_y = 8.60$  m/s<sup>2</sup>. At the end of the firing, find the following.

(a)  $v_x =$   m/s

(b)  $v_y =$   m/s

