

Construct motion diagrams for the motions described below.

a. A child is hanging from a rope by her hands. She exerts a burst of strength and 2.0 s later is traveling at 1.4 m/s up the rope.



b. An automobile comes to rest after skidding 35 m. The car's acceleration while skidding is known to be 6.0 m/s^2 .



c. Tired of walking up the stairs, an engineering student designs an ingenious device for reaching her third floor dorm room. A block is attached to a rope that passes over a pulley. The student holds the other end of the rope. When the block is released, the student is pulled up to her dorm room, 8.0 m off the ground, in a time of 1.8 s.



d. A car, initially traveling at 20 m/s to the east, accelerates toward the west at 2.0 m/s^2 . At the same time that the car starts moving, a truck, 60 m west of the car and moving at 16 m/s toward the east, starts to move faster, accelerating at 1.0 m/s^2 . It's a one-lane road and both drivers are too busy fiddling with their CD players to notice each other.

