

27. ● A car driving on the turnpike accelerates uniformly in a straight line from 88 ft/s (60 mph) to 110 ft/s (75 mph) in 3.50 s. (a) What is the car's acceleration? (b) How far does the car travel while it accelerates?
31. ●● **A fast pitch.** The fastest measured pitched baseball left **BIO** the pitcher's hand at a speed of 45.0 m/s. If the pitcher was in contact with the ball over a distance of 1.50 m and produced constant acceleration, (a) what acceleration did he give the ball, and (b) how much time did it take him to pitch it?
33. ● **Air-bag injuries.** During an auto accident, the vehicle's air **BIO** bags deploy and slow down the passengers more gently than if they had hit the windshield or steering wheel. According to safety standards, the bags produce a maximum acceleration of 60 g, but lasting for only 36 ms (or less). How far (in meters) does a person travel in coming to a complete stop in 36 ms at a constant acceleration of 60 g?
40. ●● A subway train starts from rest at a station and accelerates at a rate of 1.60 m/s^2 for 14.0 s. It runs at constant speed for 70.0 s and slows down at a rate of 3.50 m/s^2 until it stops at the next station. Find the *total* distance covered.