



chapter 4

PERFORMING BASIC VEHICLE MANEUVERS

- 4.1 Mirror Usage and Backing Procedures
- 4.2 Basic Driving Maneuvers
- 4.3 Parking Maneuvers

KEY IDEA

What methods can you use to accurately and safely maneuver your vehicle when changing lanes, turning, stopping, backing, and parking?



YOU'RE THE DRIVER

As a driver, you'll make right and left turns, park your vehicle, and drive backwards. Do you know the procedures to keep you risk-free while performing these maneuvers? Do you know how to control steering and judge space accurately in order to park safely?

Lesson 4.1 MIRROR USAGE AND BACKING PROCEDURES



OBJECTIVES

When the car is in the blind spot, you should be able to see it in the mirror.

What a convex mirror does is to eliminate blind spots.

Why backing is a high-risk maneuver, and how to minimize the risks.

Steps for safely backing a vehicle.

TERMINOLOGY

Blind spot

A convex mirror provides a wider view of the area to the side and rear of the vehicle.



Using mirrors effectively is essential for getting timely and accurate information about conditions behind your vehicle. Driving large vehicles makes good mirror-usage skills even more important. Backing situations present high crash risks, but correctly using mirrors and adhering to backing guidelines will minimize these risks.

Mirror Usage

There are three mirrors that come as standard equipment on most vehicles: the inside rearview mirror and two outside mirrors. In addition, convex mirrors can be added to help compensate for blind spots.

Inside Rearview Mirror Check the inside rearview mirror when you see something in the path you intend to travel, and before and after making a turn at an intersection, to get an update on traffic behind you. Check before and after passing another vehicle to see whether the car behind you is in position to pass you and the other vehicle. Check the mirror before and after making a lane change. Make two or three quick mirror checks rather than one prolonged check, and be on the lookout for aggressive drivers who may be weaving in and out of lanes.

Outside Mirrors Before moving the vehicle to either side, check the outside mirror on the side to which you will be moving. To check for a vehicle in the mirror's blind spot, you can look over your shoulder in the direction you wish to move, or move your head forward while checking the outside mirror.

Convex Mirrors The best way to eliminate blind spots is by attaching a convex mirror to each outside mirror. Outside mirrors on the driver's side have a flat surface, which shows a limited range of view. The surface of a **convex mirror** is curved outward like the exterior of a ball, which allows a wider view of the area to the side and rear of the vehicle. When you see something that is in both the flat and the convex mirror, you should judge its position to your vehicle by use of the flat mirror.

When you can see something in the convex mirror, but not in the flat mirror, then it is in the blind-spot area. It will be unsafe to move into its path.

Backing

Backing is a high-risk maneuver because drivers cannot see behind their vehicles; in most vehicles, they cannot see the pavement within 45 feet of the rear. Therefore, obstructions lying on the pavement can go undetected. Always walk to the rear of the vehicle before getting into it to check for a safe path for the tires to travel.

Procedures for Backing

1. Place your foot firmly on the brake, and shift into reverse.
2. Use a target to aim the car toward. Look over your right shoulder to see your targeting path.
3. Check all three mirrors to supplement looking over your shoulder.
4. Travel no faster than a crawl by slightly releasing brake-pedal pressure.

Backing Straight When backing straight, put your left hand on the steering wheel at the 12:00 position. Move the top of the steering wheel in the direction you want the back of the vehicle to go.

Backing Left or Right When backing left or right, start with both hands on the wheel. This will allow easier head movement to check all four corners of the vehicle during the turn. Pull the wheel from the top down in the direction you want the back of the vehicle to go. Be sure to check not only the rear as you back but also the swing of the front of the vehicle before turning takes place.

DID YOU KNOW?

Passenger-side mirrors are slightly convex, resulting in a smaller image than that of the driver's side. The warning "Objects In Mirrors Are Closer Than They Appear" is placed on it to prevent anyone from being fooled by the smaller image. However, the curvature is not great enough to eliminate blind-spot areas.



review it 4.1

1. What effect does the curvature of a mirror have on image size and your perception of its distance from your vehicle?
2. What does it mean when you can see something in the convex mirror attached to an outside mirror but not in the flat mirror?
3. What outside checks should you make before backing any vehicle?

Critical Thinking

4. **Relate Cause and Effect** Explain how using mirrors correctly helps you to be a low-risk driver.
5. **Apply Concepts** Name two situations where you need to use the outside mirrors.

IN THE PASSENGER SEAT

Watch Out! Your friend is ready to back out of his driveway and is not looking to the rear. What would you say to him?



Lesson 4.2

BASIC DRIVING MANEUVERS

OBJECTIVES

- Identify situations and timing for communication using turn signals.
- Explain how to make left and right turns.
- Describe three methods for making a turnabout, and state which is the safest.
- Identify the factors to consider in deciding which type of turnabout to use.

VOCABULARY

Turnabout

Performing basic driving maneuvers properly depends upon using speed control, steering control, and good visual habits with consistency. Once you learn how to perform one maneuver, you can then use the behaviors frequently to develop them into habit.

Signaling

Being a safe and responsible driver requires communicating your intentions to others on the road. The most common method of communication is through the use of turn-signal lights. Develop the habit of signaling every time you plan to turn, change lanes, pull to the side, or re-enter the traffic flow. Signal at least five seconds in advance of beginning any maneuver to give other drivers adequate time to react to your actions.

Even though all vehicles have turn-signal devices, there will be times when you have to use hand signals for further protection, as shown in **FIGURE 2**. Use your right hand to maintain steering control.

Entering Traffic Flows

You should avoid backing into a traffic flow. Pulling out forward will reduce risk and provide the best visibility for observing approaching traffic. Follow these steps for entering a traffic flow.

1. Check to your left, front and right zones before entering a traffic flow. Find a safe space to enter within the traffic flow.

FIGURE 2



Right turn

Left turn

Slow or stop



2. Select the proper and legal lane to enter and accelerate smoothly until operating at travel speed.
3. After entering a traffic flow, cancel the turn signal manually if necessary.
4. Re-evaluate the rear zone for fast approaching vehicles.

Making Right and Left Turns

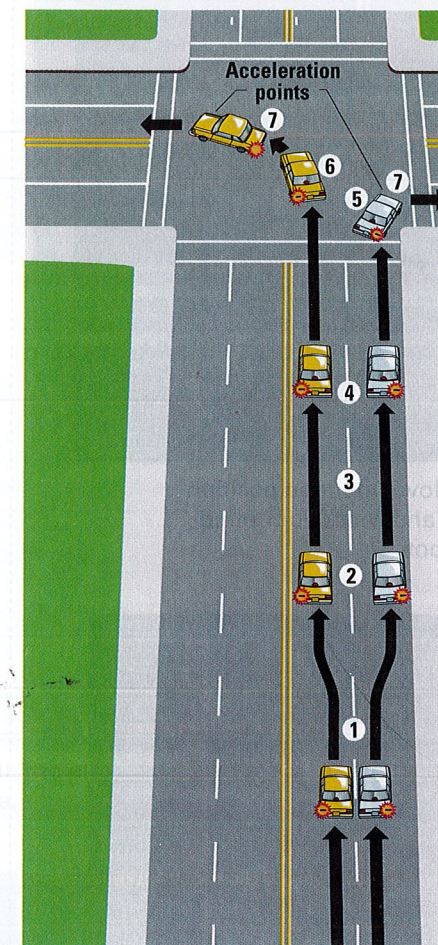
Make left and right turns only after checking for traffic and pedestrians. Be sure to search the mirrors when making any braking action.

The numbers in **FIGURE 3** match the following steps for turns:

1. Position your vehicle in the correct lane for the turn. For a right turn, use lane position 3 if there are no parked vehicles. For a left turn, use lane position 2, the lane nearest the center line. (On a one-way street, this could be in the far left lane.) Signal five seconds before the turn.
2. Brake early to reduce speed.
3. Search the left, front, and right zones for vehicles, pedestrians, and bicyclists.
4. Slow to about 10 mph just before the crosswalk.
5. For a right turn, check to the left again before turning. Then look in the direction of the turn. Begin turning the wheel when your vehicle's front bumper is even with the curb line.
6. For a left turn, check traffic to the left, front, and right. Be certain there is no oncoming traffic, and that the path you intend to enter is clear. Turn your head and the steering wheel to the left once the car enters the intersection to look into the lane you will enter.
7. Turn into the nearest lane of traffic going in your direction. Halfway through the turn, accelerate as you return the wheel to the straight-ahead position.

FIGURE 3

Steps for making left turns (yellow car) and right turns (white car)

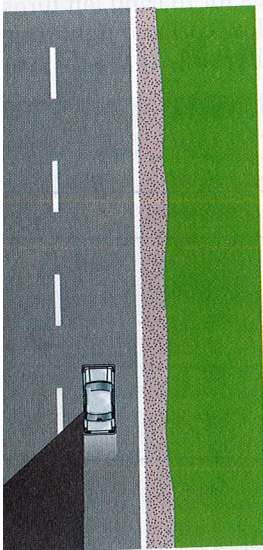


Lane Changes

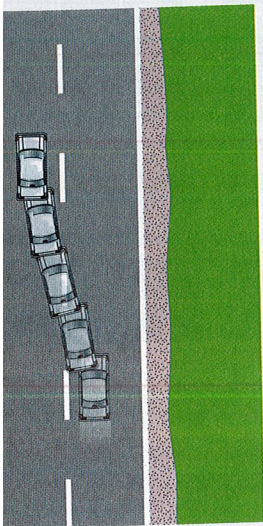
Before deciding to make a lane change, consider whether it is necessary, beneficial, and legal. Look for an opening in rear traffic that might occur.

Procedures for Changing Lanes

1. Put your signal light on and use lane position 2 or 3 to bring you closer to the lane you will enter.
2. Check your mirror and blind spot. Avoid unintentionally moving the steering wheel.
3. Gradually ease into your new lane.
4. Release the signal lever. Check behind you. Get the best speed and lane positioning to blend in with the traffic flow.



lane position
check your blind



ar, move into
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one.

Turning the Vehicle

The safest way to turn your vehicle around is to drive around the block. If this is impractical, there are several ways to accomplish a **turnabout**. A turnabout is when you turn your vehicle around to go in the opposite direction. Take these precautions when you plan to make a turnabout:

- Be sure local laws permit the turnabout.
- Select a location with at least 10 seconds of visibility in each direction.
- Do not make a turnabout near hills or curves or within 200 feet of intersections.
- Never attempt a turnabout in heavy or high-speed traffic.
- Continually check all around you for traffic, bicyclists, and pedestrians.

Midblock U-turn Make sure local and state laws permit this type of turnabout. Solid pavement markings in the center of the road indicate that a U-turn is prohibited. You need at least two wide lanes to make a U-turn.

1. Pull to the far right edge of the road and stop.
2. Check the front and back, and your left-rear blind spot. If the front and rear are clear, signal and turn sharply left while moving slowly.
3. When the vehicle is headed towards your target area, recheck your rear and accelerate to the speed of traffic.

Back Into a Driveway on the Right Side Know your state law for the use of driveways. Avoid backing beyond the sidewalk.

1. Check behind you and check the driveway. Tap your brake lights to signal to drivers behind you.
2. Shift into reverse and if it is clear, begin turning. Back only until the vehicle is straight.
3. Signal left and make the left turn when the path is clear.

FIGURE 5

A midblock U-turn is risky because you must cross oncoming traffic.

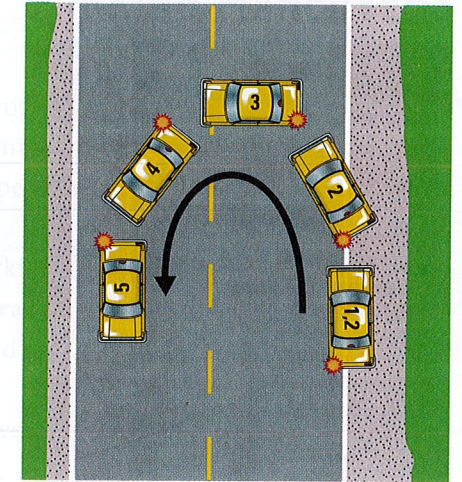


FIGURE 6

Using a driveway on the right side has the advantage of letting you reenter traffic going forward.

A riskier option is to pull into a driveway on the left side.

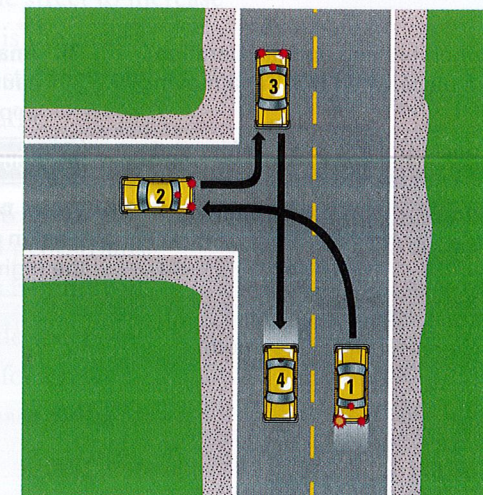
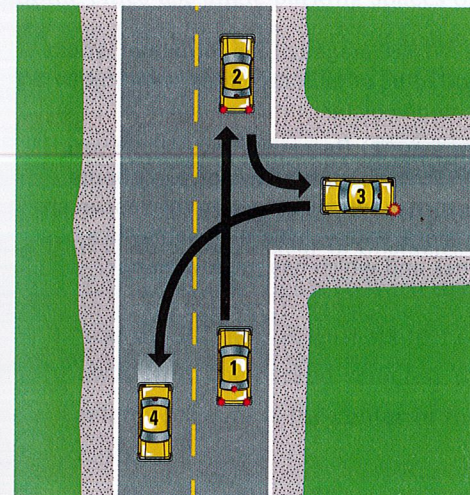
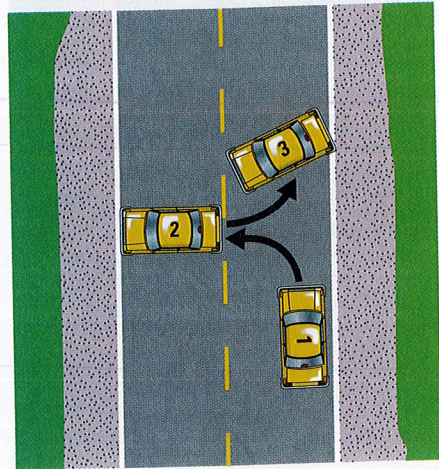


FIGURE 7
The three-point turnabout should only be done in a lightly traveled area.



Pull Into a Driveway on the Left Side If there is no acceptable driveway on the right and you must use a driveway on the left, it increases your risk because you will need to back out of the driveway into traffic.

1. Use the same procedures as making a left turn.
2. When traffic is clear, back out and stay as close to the curb as possible.

Three-Point Turnabout This is a dangerous maneuver and should only be performed where there will be no traffic that you cause to stop while you complete the turnabout.

1. Pull as far to the right side of the road as you can. Check in front of and behind you. Make a blind-spot check and signal for a left turn.
2. If your path is clear, turn sharply left and stop before reaching the curb.
3. Recheck for traffic, shift to reverse, and turn sharply while backing slowly. Back only as far as necessary to complete the maneuver.
4. Check traffic again and signal left. Move slowly forward while steering toward your new target area.

review it 4.2

1. Explain how and when braking and acceleration actions should take place when making a moving right turn.
2. Explain how lane positioning is used before and after making a lane change.
3. What is the safest way to perform a turnabout?

Critical Thinking

4. **Compare and Contrast** How is making a midblock U-turn different from a three-point turnabout?

5. **Analyze** Which stages of the turnabout would cause you to be at fault if your car were hit by an approaching vehicle?

IN YOUR COMMUNITY

Research Investigate your state's laws on turnabouts.

Which of the turnabouts described in this lesson are legal in your state, and which are illegal? Which has the highest risk and which has the lowest risk?

lesson 4.3 PARKING MANEUVERS

OBJECTIVES

- List the advantages and disadvantages of angle, perpendicular, and parallel parking.
- Describe how to perform each parking maneuver.
- Explain the differences among the three parking maneuvers.

VOCABULARY

- angle parking
- perpendicular parking
- parallel parking
- reference point
- standard reference point
- personal reference point
- forward reference point

Parking your car is a skill that you need to practice. To park easily, you need to control the vehicle with steering, braking and an understanding of reference points. There are three basic ways to park: angle parking, perpendicular parking and parallel parking.

Angle parking spaces can be at the curb of a street or in a parking lot. **Perpendicular parking** is only used in parking lots. Finally, **parallel parking** is a method of backing between two vehicles that are parked alongside a curb.

A **reference point** is some part of the outside or inside of the vehicle, as viewed from the driver's seat, that relates to a part of the roadway.

Knowing reference points enables you to put your vehicle exactly where you want it. Once you know and can use reference points, you can apply them to any vehicle that you drive.

The reference points on a vehicle that are typical for most drivers are called **standard reference points**. A **personal reference point** is an adaptation of a standard reference point for your own vehicle. The **forward reference point** is when steering should begin during a maneuver.

Angle and Perpendicular Parking

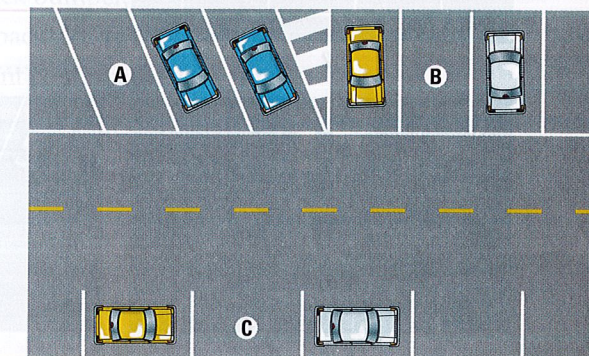
Some cities use angle parking spaces on the street to increase the number of curbside parking spaces. It is the easiest parking procedure to perform, but the most dangerous to exit because you will be backing into traffic.

To park in an angle space, follow these steps:

1. Check behind you. Check the parking space to see if it is legal and clear of obstacles and pedestrians. Tap your brake lights to warn drivers behind you.
2. You should have at least six feet of side space away from the parked vehicles. Your forward reference point is the center of the space at the curb.

FIGURE 8

A. Angle B. Perpendicular
C. Parallel



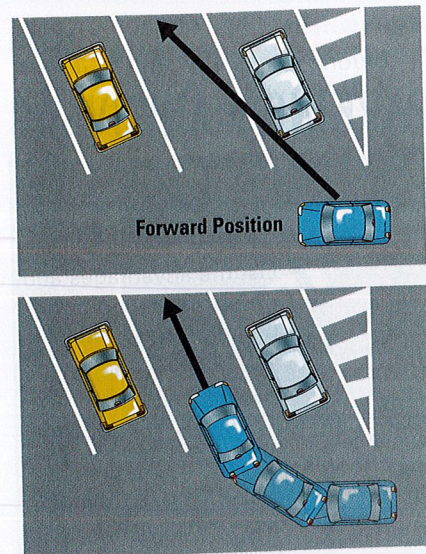
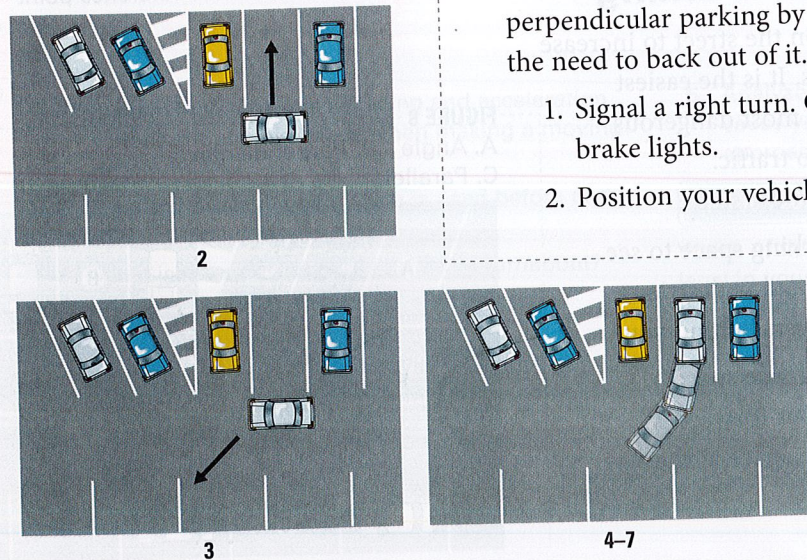


FIGURE 9 Angle parking in a parking lot is intended for head-in parking only. Most angle parking spaces will be on your right side.

FIGURE 10 Perpendicular back-in parking



3. Quickly turn the steering wheel while the vehicle is moving slowly.
4. Line up with a target at curbside, such as a parking meter. Straighten the car and tires.
5. Place the tip of the bumper even with the curb.

To perpendicular park, you can follow the same steps as for angle parking except you will need at least eight feet of side space from the parked vehicles.

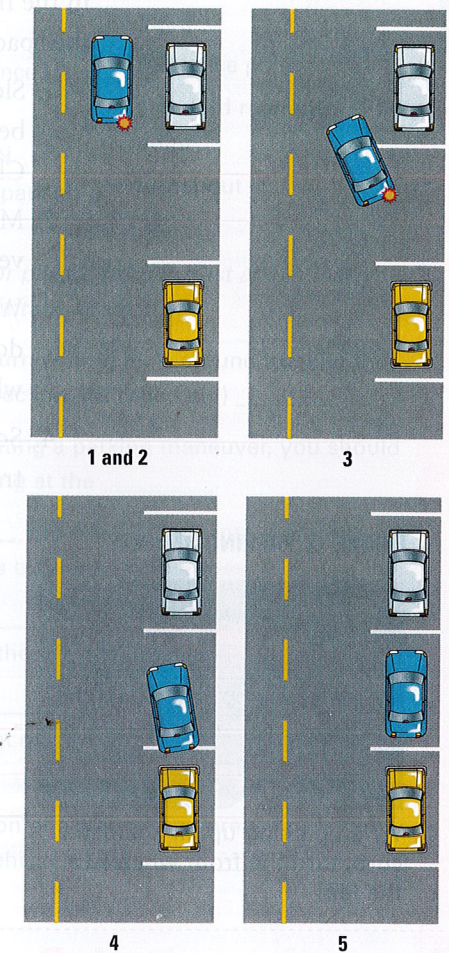
Leaving an Angle or Perpendicular Space Backing out of a parking space is a high-risk maneuver because you will be backing into a potential traffic flow with your view blocked. Back slowly! Look behind you and to the sides for approaching vehicles and pedestrians.

1. Creep straight back by controlling speed with your brake. When your front bumper is even with the rear bumper of the vehicle that is on the opposite side of where the back of your vehicle will go, begin to turn the steering wheel.
2. Stay close to the parked cars when backing to reduce risk from approaching traffic. Straighten the tires, shift to a forward gear. Proceed forward as you check the front. Recheck behind you for fast-approaching vehicles.

Perpendicular Back-In Parking You can reduce the risk of perpendicular parking by backing into the space, eliminating the need to back out of it.

1. Signal a right turn. Check traffic to the rear, and tap your brake lights.
2. Position your vehicle so that its side is 3 feet from the parked cars, and your body appears to be aligned with the center of the parking space.
3. Select a target 45 degrees to your left, using the outer edge of the driver's side mirror.

FIGURE 11 Steps for parallel parking



4. Align your vehicle with the target using the least forward motion possible, while quickly turning the steering wheel.
5. Line up your car with the parking space. Straighten your tires and shift to REVERSE.
6. Back until the corner of the car parked next to your space is in your rear window's blind spot, then quickly turn the steering wheel all the way to the right while backing slowly.
7. When your car is properly aligned in the space, straighten your tires. Back until the back line of the space appears to be in the middle of the rear side window.

Parallel Parking

Use parallel parking to park your vehicle parallel to the curb. Select a space that is five to six feet longer than your vehicle. When parking on the right, the front of your vehicle will swing far to the left.

1. Signal a right turn and flash your brake lights. Evaluate the parking space to be sure it is legal and clear of objects. Stop about three feet away from the parked cars.
2. Then pull forward so that your rear bumper is even with the rear bumper of the vehicle parked in front of the space you want to enter.
3. Back slowly, controlling speed with your brake. When the back of the passenger's seat is even with the rear bumper of the front vehicle, straighten the wheels. Look over your shoulder, through the rear window.
4. When your front bumper is even with the front vehicle's back bumper, turn the wheel sharply left towards the street. Continue to back slowly to clear the front car's rear bumper. Check to the back and front continually.
5. Straighten your tires and center the car when your vehicle is parallel to the curb.

Chapter Vocabulary

- angle parking
- convex mirror
- forward reference point
- parallel parking
- perpendicular parking
- personal reference point
- reference point
- standard reference point
- turnabout

Write the word or phrase from the list above that completes the sentence correctly.

1. When you turn your vehicle around to go in the opposite direction, it's called a(n) _____.
2. While executing a parking maneuver, you should begin steering at the _____.
3. In _____, you have to back into a parking space that is between two vehicles.
4. A(n) _____ allows a wider view of the side and rear of the vehicle than a flat-surface mirror.
5. A(n) _____ is a part of the vehicle from the driver's point of view relative to a part of the roadway.
6. An adaptation of a standard reference point for your own vehicle is a(n) _____.

STUDY TIP

With classmates, move two chairs to represent a perpendicular parking space. Have one student pretend that she is in a car and have her demonstrate the correct maneuvers involved in backing into the parking space. Other classmates should use the book to evaluate her maneuvers. Take turns and repeat for all parking positions.

CHAPTER 4 REVIEW

Lesson Summaries

4.1 MIRROR USAGE AND BACKING PROCEDURES

- You can eliminate a mirror's blind-spot areas by placing a convex mirror on the outside corners of both the driver- and passenger-side mirrors.
- When your foot covers the brake pedal, your eyes should automatically go to the rearview mirror.

4.2 BASIC DRIVING MANEUVERS

- The most common method of communicating is by the use of signal lights. Develop the habit of signaling every time you plan to turn, change lanes, pull to the side, or reenter the traffic flow. Signal at least five seconds before you begin any maneuver.
- Use lane position 2 to get 3-6 inches from the center line of the road for left turns, and lane position 3 to get 3 feet from the curb or road shoulder for right turns.
- A turnabout is a maneuver for turning your vehicle around to go in the opposite direction.

4.3 PARKING MANEUVERS

- Angle parking and forward perpendicular parking maneuvers are performed almost exactly the same way. The only difference is that you will need a wider side position for parking forward into a perpendicular space than when angle parking.
- Backing out of parking spaces is a high-risk maneuver.

Leaving a Parallel Parking Space You are responsible for avoiding a collision when leaving a parallel parking space. You must search for a safe gap in the flow of traffic, and yield to all oncoming vehicles. To begin exiting the space:

1. Slowly back straight until your rear bumper almost touches the vehicle behind you. Turn the wheels sharply left as you stop. Signal a left turn. Check your left mirror and the blind-spot area.
2. Move the vehicle forward slowly. Check the right-front corner of your vehicle for clearance.
3. When you are halfway out of the parking space with your passenger door aligned with the street-side corner of the parked car, turn your wheels slowly to the right.
4. Scan the front again, and accelerate as you center your vehicle in the traffic lane.

2 PARKING ON HILLS



When parking uphill against a curb, turn the front wheels to the right.



When parking uphill or downhill where there is no curb, turn your wheels to the right.



When parking downhill against a curb, turn the front wheels to the right.

view it 4.3

- Explain the three basic types of parking methods.
- Explain why street-side angle parking is the most dangerous parking method.
- Why is reverse-angle parking safer than angle parking?
- How should the tires be turned when parked downhill with a curb?

Thinking

Analyze Explain why backing out of a parking space puts other drivers in a high-risk situation.

IN YOUR COMMUNITY

Observe Traffic Locate a busy parking lot with perpendicular parking spaces. Spend thirty minutes observing drivers parking. Record the number of drivers who

- a. pulled forward into a front space.
- b. backed into the space.
- c. pulled in forward requiring the need to back out.
- d. had near-misses, and what actions the drivers were taking when they had them.
- e. did not search properly while backing.

Share your findings with the class.