

**THIS COMPLETED PACKET MUST BE HANDED IN TO RECEIVE CREDIT FOR THIS CLASS**

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

CLASS TIME: \_\_\_\_\_

LEARNER PERMIT #: \_\_\_\_\_

**PARENT'S CONFIRMATION OF CLASS ATTENDANCE:**

I, \_\_\_\_\_, confirm that the above individual attended two hours  
(print parent name)  
of the online class (outlined below) at the above date and time.

PARENT'S SIGNATURE: \_\_\_\_\_

**CHAPTER 5.1: Natural Laws and Car Control**

Chapter 5 sections...

- Energy of Motion
- 5.2 Friction and Traction
- Road Surface
- Total Stopping Distance
- Estimated Stopping Distance
- Factors that Affect Braking Distance
- Force of Impact

**Please read the above chapter sections and complete the following questions.** (take the information directly out of the book. Do NOT summarize or paraphrase.)

1. What factors affect energy of motion? What happens to energy of motion if you double either factor?



7. What 3 factors affect your force of impact? How can you reduce your force of impact?

## **CHAPTER 5.2: Natural Laws and Car Control**

**Complete the following textbook work...**

“Check Knowledge”, page 106

- |    |    |
|----|----|
| 1. | 5. |
| 2. | 6. |
| 3. | 7. |
| 4. | 8. |

“Vocabulary”, (choose a letter from list B), page 106

- |     |     |
|-----|-----|
| 8.  | 11. |
| 9.  | 12. |
| 10. |     |

### Complete the Statements on Natural Laws and Vehicle Control

Write the word or words listed in the box that complete(s) the statement on natural laws and vehicle control.

braking distance	reaction time
perception time	reaction distance
perception distance	total stopping distance

- \_\_\_\_\_ 13. The distance your vehicle travels while stopping is \_\_\_\_\_.
- \_\_\_\_\_ 14. Your \_\_\_\_\_ is the length of time it takes you to identify, predict, and decide to slow for a hazard.
- \_\_\_\_\_ 15. The distance traveled while you identify a situation is your \_\_\_\_\_.
- \_\_\_\_\_ 16. Your \_\_\_\_\_ is the length of time you take to execute your action in response to a hazard after you identify it.
- \_\_\_\_\_ 17. The distance your vehicle travels from the time you apply the brakes until your vehicle stops is called \_\_\_\_\_.
- \_\_\_\_\_ 18. Your \_\_\_\_\_ is the distance your vehicle travels while you identify and react to a hazard.

### Applications

#### Complete Each Sentence

Write the word or words that complete(s) the following statements.

1. The two forces that work on your vehicle as you go around a curve are traction and \_\_\_\_\_.
2. To maintain high levels of traction, the road must be clean, dry, level, and \_\_\_\_\_.
3. Ice tends to form first on areas such as bridges and \_\_\_\_\_.
4. Check tire pressure when tires are \_\_\_\_\_.
5. Some vehicles have supplemental restraint systems called \_\_\_\_\_.
6. Most collisions occur at speeds of less than 40 mph and within \_\_\_\_\_ miles of home.

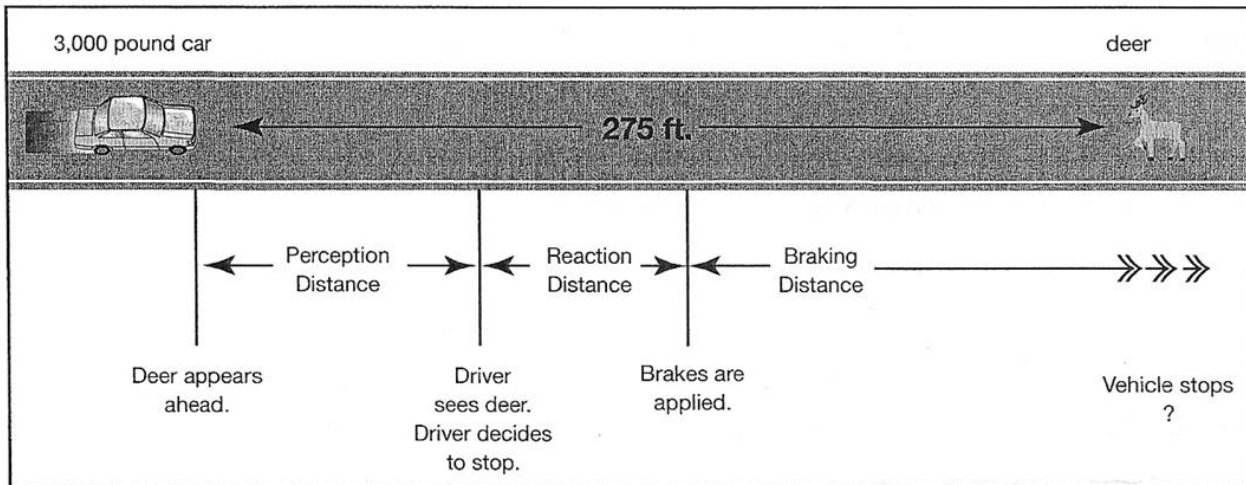
### Estimate the Stopping Distance

Use the charts below and to the right to answer the following questions. You are driving the vehicle at 55 mph.

Use the chart on the right as follows:

- to change miles per hour (A) to feet per second (B)
- to find distance covered in 3/4-second reaction time (C)
- to find approximate braking distance (D)

miles per hour (A)	perception distance per second (B)	3/4-Second reaction distance (C)	approximate braking distance (D)
20	29 ft.	22 ft.	20 ft.
30	44 ft.	33 ft.	40 ft.
40	59 ft.	44 ft.	73 ft.
50	73 ft.	55 ft.	119 ft.
55	81 ft.	61 ft.	150 ft.



- \_\_\_\_\_ 1. A deer appears ahead. You see the deer *one second* later. How many feet did you travel? *55 mph*
- \_\_\_\_\_ 2. At 55 mph, how far will you travel during your 3/4-second reaction time?
- \_\_\_\_\_ 3. Traveling at 55 mph, your approximate braking distance is how many feet?
- \_\_\_\_\_ 4. What is your total stopping distance? (Add the answers to questions 1, 2, and 3.)
- \_\_\_\_\_ 5. The picture shows the distance between you and the deer. Will you stop in time, or will you collide with the deer?
- \_\_\_\_\_ 6. What would your total stopping distance have been if you were traveling at 50 mph? (Add B, C, and D across in the chart.)
- \_\_\_\_\_ 7. Traveling at 50 mph, could you have avoided colliding with the deer?
- \_\_\_\_\_ 8. Under ideal conditions, what approximate amount of total time do you need to *see,* react to a hazard, and bring your vehicle to a stop?
- \_\_\_\_\_ 9. What is the most important factor in determining how hard your vehicle will hit the deer?
- \_\_\_\_\_ 10. If your vehicle weighed twice as much, how much harder would your vehicle hit the deer?