# WORK SHEET

## Module 4.1 Calculating Braking Distances

Name_____ Date_____

Score_____

**Feet Per Second Calculation**
One mile = 5, 280 feet
One hour = 3,600 seconds **5,280 ÷ 3,600 = 1.46666 feet (1.467) per second a vehicle will travel**

Use 1.467 feet/sec to calculate distance traveled for all speeds
**Example**: 40 mph X 1.467 = 59 feet per second traveled at 40 mph

Simplified method not as accurate, but close:
Speed ÷ 2 = a number, + speed = feet per second traveled
**Example:** 40 mph ÷ 2 = 20 + 40 mph = 60 feet per second traveled at 40 mph

**Reaction Time Distance Calculation**
Average reaction time is 3/4 of a second (.75) (driver is alert and ready to react)

To calculate reaction time distance:
speed X feet per second traveled X .75 (reaction time) = feet traveled during reaction time

**Example**: 40 mph X 1.467 x .75 = 44 feet traveled during reaction time
**Example**: 40 mph ÷ 2 = 20 + 40 mph = 60 X .75= 45 feet traveled during reaction time

**Braking Distance Calculation**
Speed X Speed ÷ 10 ÷ 2 = Average Braking Distance

**Example**: 40 mph X 40 mph ÷ 10 ÷ 2 = 80 feet to stop at 40 mph

**Total Stopping Distance**
Reaction Time (speed X 1.467 X .75) + Braking Distance (Speed X Speed ÷ 10 ÷ 2) = Average Stopping Distance

**Example: 40 X 1.467 X .75) + ( (40 X40 ÷ 10 ÷ 2) =**
**44 + 80 = 124 feet Average Stopping Distance**

**Calculate the following:**

| SPEED (S) | Feet per second traveled<br>S X 1.467 ft/sec = | Reaction Time Distance<br>S x 1.467 x .75 = | Braking Distance<br>S x S ÷ 10 ÷ 2 = | Total Stop Distance<br>Reaction Distance + Braking Distance= |
|---|---|---|---|---|
| 20mph | | | | |
| 30mph | | | | |
| 40mph | 40 X 1.467 =<br>59 ft/sec | 40 X 1.467 X .75 =<br>44 feet | 40 X 40 ÷10 ÷ 2 =<br>160 feet | 44 feet + 160 feet =<br>204 feet |
| 50mph | | | | |
| 55mph | | | | |
| 60mph | | | | |
| 65mph | | | | |
| 70mph | | | | |
| 75mph | | | | |
| 80mph | | | | |