**Meets ASE Task:** (A0-F-11) Uses scientific, technical, engineering and mathematics (STEM) principles and reasoning to accomplish assigned tasks.

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date:\_\_\_\_\_\_\_\_\_\_\_\_\_

Time on Task:\_\_\_\_\_\_\_\_\_\_\_\_\_

Make/Model/Year:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

VIN:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Evaluation (Enter number from 4, 3, 2, 1) :\_\_\_\_\_\_\_\_\_

**Brake System Principles**

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The energy required to slow and/or stop a vehicle depends on two major factors:



* Weight of the vehicle
* Speed of the Vehicle

**1.** Check service information and determine

the weight of the vehicle.

Weight = \_\_\_\_\_\_\_\_\_\_\_

**2.** Add the number of possible passengers (one for each location equipped with seat belts

times 150 pounds each):

Number of passengers = \_\_\_\_\_\_ × 150 pounds = \_\_\_\_\_\_\_\_\_\_\_\_\_

**3.** Add possible luggage or cargo (see tire pressure decal) weight:

Luggage or cargo = \_\_\_\_\_\_\_\_

**4.** Total vehicle weight = \_\_\_\_\_\_\_\_\_\_\_

**5.** Using the formula, determine the kinetic energy at the following speeds:

weight × speed2 = kinetic energy

29.9

30 mph = \_\_\_\_\_\_\_\_\_

60 mph = \_\_\_\_\_\_\_\_\_