# Weights and Balances Questions

**Answer the following questions based on what you learned from the video:**

1. How do I determine a vehicle's Gross Weight (GW)?
   Answer: Add the Front Axle Weight (FAW) and Rear Axle Weight (RAW) together to get the Gross Weight (GW). FAW + RAW = GW

2. If a vehicle that has a Rear Axle Weight (RAW) of 4200 lbs and a Front Axle Weight (FAW) of 3750 lbs, what is the Gross Weight (GW) of the vehicle?
   (Answer: 3750 lbs+4200 lbs=7950 lbs)

3. How do I find the wheelbase for a vehicle?
   (Answer: Measure the center of the front tire to the center of the rear tire in inches)

4. If a vehicle has a RAW of 3940 lbs and a wheelbase of 156 inches, what are its moments?
   (Answer: 614,640)

5. If a vehicle that has a Rear Axle Weight (RAW) of 4200 lbs and a Front Axle Weight (FAW) of 3750 lbs and wheelbase of 162 inches, what is its Center of Gravity (CG) from the front axle?
   (Answer: 85.5 round up to 86 inches from the center of the front axle is the CG)

6. If I park a vehicle at center balance (CB) station number 740 on the aircraft and its Gross Weight (GW) is 8900 lbs, how many moments does that give me?
   (Answer: 6,586,000)

7. We have 3 vehicles loaded on the aircraft. Vehicle one has a RAW of 3400 lbs and a FAW weight of 4300 lbs, Vehicle 2 has a RAW of 2750 lbs and a FAW of 3900 lbs and Vehicle 3 has a RAW of 5300 lbs and a FAW of 7470 lbs. What is the total weight that we have loaded on the aircraft?
   (Answer: all GW added together = 27,120 lbs)

8. Calculate the total moments based on the following load information:
   Vehicle 1 weighs 7,890 lbs and is centered at center balance station 570
   Vehicle 2 weighs 16,430 lbs and is centered at center balance 800
   Vehicle 3 weighs 9,120 lbs and is centered at center balance 1040

(Answer: all moments added together = 27,126,100)

9.  How do we calculate the aircraft center of balance?
    (Answer: Take the weight of each vehicle and multiply it by the station number to get the aircraft moments. From there add all the moments up and then divide that by the total weight of your vehicles. This will give you your Aircraft Center of Balance)

10. Based on the information is question 8 what would be the Center of Balance (CB) on the aircraft?
    (Answer: 811.18 round it to CB of 811)