Performance and Limitations

1. What is the formula for calculating the weight and balance of a glider?

2. What formula is used to calculate the center of gravity of a glider?

3. What conditions must be satisfied when calculating the weight and balance of a glider?

4. Where can you find information such as the moment of the front seat, back seat and ballast?

5. Where can you find the maximum and minimum pilot weights for the glider you will use for your test?

6. Using the SGS 2-33 described in the 2-33 manual with a front pilot weight of 185lbs and a rear pilot weight of 200lbs, list the following information – (show any calculations below)

    a. Is the glider within CG limits?

    b. Is ballast required?

    c. Is the glider below maximum allowable weight?

    d. What is the L/D at 65mph:

    e. What is the maximum L/D:

    f. What is the maximum L/D speed:

    g. What is the sink rate at 65 mph:

    h. What is the L/D at the minimum sink:

    i. What is the maximum positive load factor:

    j. What is the maximum negative load factor:

    k. What is the minimum sink rate:

    l. What is the minimum sink speed:

    m. What is the maneuvering speed:

    n. What is the maximum aerotow speed:

    o. What is the maximum ground launch speed:

    p. What is the Vne:

    q. What speed should be used when flying into a 20 mph headwind?

7. What is the main purpose of water ballast?

8. Why should water ballast be jettisoned prior to landing?

9. What two conditions affect density altitude?

10. What should be expected when taking off with a high density altitude?

11. Why do you need a longer runway when landing with a high density altitude?

12. As airspeed increases does load factor increase or decrease?

13. Why does stall speed increase with bank angle?