



WEIGHT AND LIFT

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1. Assume 100 liters of propane can carry a load of two people for 1.5 hours and four people for one hour. How long will it carry a load of six people?
2. A balloon weighing 150 lbs must be 13 ft in radius with an inside heated temperature of 120 degrees celsius to lift off the ground (assume the shape of the balloon is a sphere).
 - a. If the basket and heater each weigh 150 lbs apiece, how big does the balloon need to be to lift up into the air?
 - b. What if I have three friends coming with me? Together they weigh 450 lbs. How big does the balloon need to be?
 - c. What if I have one friend who weighs 210 lbs? How big does the balloon need to be?
3. Hot air balloons support themselves (stay inflated but do not launch) at 40 degrees about the outside temperature and launch at 100-125 degrees about it.
 - a. If the temperature of the air in the balloon is 125 degrees, what is the range of temperatures at which would the balloon inflate?
 - b. If the outside temperature is 85 degrees, about how hot should the air in the balloon be? Will that be hot enough to boil water?

4. The maximum recommended internal temperature is about 250 degrees because the nylon fabric begins to degrade at that temperature. Given this information, do you think a balloon can fly almost anywhere on earth? Explain your answer.