Problem A:
I generally treat final exams in the following manner:
If the grade on the final is higher than your test average going into the final, then the final exam is worth half of your test average and the average of your other tests is the other half.
If your final exam grade is lower than your test average then the final weighs just as much as the other tests.

1. Write an equation to compute your test average from your prefinal test average and your final exam score in the event that you do better on the final than on previous tests. \[ A = \frac{p + f}{2} \]
2. Write an equation to compute your test average from your prefinal test average and your final exam score in the event that we have four tests before the final and you do not do as well on the final as on those four tests. \[ A = \frac{4p + f}{5} \]
3. Suppose that we have four tests before the final and that your average on those four tests is an 86 and that you have determined that you need a test average of at least 78 to get a B. How well do you have to do on the final to keep your B? **You need at least a 46**
4. If you need a 92 test average to get an A can you do it? **I don’t know, can you get a 98?**

5. Suppose that we have three tests before the final and that your average on those three tests is an 82 and that you have determined that you need a test average of at least 76 to get a B (80 average). How well do you have to do on the final to keep your B? **You need a 58.**
6. In the situation in number 5, if your test average is worth 70% of your final grade, What score would you need to get an A (90 average)? **You’d need to score 100.** How badly would you have to blow the final to earn a D(average < 68)? **You would need to get less than a 26.**

7. Do you think this is a reasonable way to weigh the final exam? **Only if you think that blowing one test shouldn’t undo a whole semester’s work but that if you can do really well on a cumulative final it should be able to bring your grade up.**

(Note: this analysis is not exactly what my policies are since for the A we’re effectively assuming 2 points for attendance but for the B we are not.)

Problem B

At Salisbury University you need to earn 120 credits to graduate.
Suppose you wish to do so by taking only standard three or four credit courses and that you do not want to take even one credit extra. Write an equation relating the number of three credit courses you could take to the number of four credit courses. Draw a graph of this relationship.
Suppose you have already taken 6 three credit courses and 3 four credit courses, indicate on your graph the region that is still feasible.

Let \( t \) = # of three credit courses and \( f \) = # of four credit courses. \[ 120 = 3t + 4f; f = 30 - .75t \text{ or } t = 40 - 4f/3. \]

Problem C

Suppose a software company has offered the university a site license for their software with the following pricing policy: The site license costs $500 plus $10 for each registered user. We would use the software in a course for which there is a $25 per student course fee. If students registered for the course would all be registered users of the software and would be the only registered users, how many students would need to enroll in the course before the course fee would cover the cost of the licence? **Cost = $500 +$10s Revenue = $25s**

Break-even: \( 25s = 500+10s \Rightarrow 15s = 500 \Rightarrow s = 500/15; \) You need 34 students.