

## PROBLEM SET 5

**Due:** Friday, May 25, 11:59PM

**Note:** Each student must submit their solutions to the form at <http://bit.ly/KxKvtd> for grading.

To earn partial credit, please submit your work to Lore (Coursekit) in .xls, .pdf, .doc, or .docx format

Unless otherwise specified, answer to 2 decimal places, omit symbols, and express percentages as "0.XX"

**This problem set reviews a few major concepts from earlier in the course, and one recent one:**

- The fundraising process and cap table math
  - Option exercise price and tax treatment
  - The "definite-indefinite, optimistic-pessimistic" framework
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You are the cofounder of a consumer internet startup. At the company's formation, you and your cofounder each invested \$2,000 in exchange for 2,000,000 common shares each in the company (a Delaware C-corp).

1. Immediately after the company's founding, what was the value of the company?
2. Immediately after the company's founding, what was the price per share, in dollars?  
*Please answer to whatever number of decimal places necessary, e.g. "X.XX" or "X.XXXX"*

With the initial product launched and traction growing quickly, you have decided that you would like to raise \$250K from an angel investor. This will allow you to hire a few other team members to handle product marketing and build out the next set of products. The angel investor has proposed an equity round of \$250K on a pre-money valuation of \$1.00M, in which angel receives common stock. Because you think this is a fair price, you want to work with this angel, and to close this round of financing quickly, you have decided to accept the offer.

3. At this angel round, what is the Price Per Share (PPS) of the common shares?
4. How many shares does the angel receive through this financing?
5. Immediately following the financing, what percentage of the company does the angel own?  
*Express as a 2-digit decimal, i.e. 15% = "0.15"*

6. How many shares are outstanding immediately following the angel round?
7. What is now the post-money valuation of the company?

Immediately following the angel round, you decide to bring on some great engineers you know from undergrad. You hire these 5 employees, giving them all the same compensation package, which includes 100,000 common shares, vesting over 4 years with a 1 year cliff.

8. How many common shares are now outstanding, including these unvested shares?
9. What is now the total value of all equity in the company? (assume deal price from angel round)
10. What percentage of the company do these early employees own, in total? (assume all shares vested) *Express as a 2-digit decimal, i.e. 15% = "0.15"*
11. What percentage of the company do you and your cofounder now own, in total (together)? *Express as a 2-digit decimal, i.e. 15% = "0.15"*

Following another year of hard work and success, your product now has a few million users and steady growth. You are not yet profitable and would like to grow faster to take over the market (which you believe has strong network effects). You and your cofounder would like to raise \$5M from a top-tier VC where there is a great fit, and your team agrees this is the right approach.

After doing a few pitch meetings with a few carefully selected VCs, you have a term sheet you are happy with: \$4M on \$22M pre, receiving preferred shares with 1x participating-preferred liquidation preferences. While the "liq pref" term was something you negotiated against, it enabled you to keep your board of directors as only you and your cofounder, with the VC receiving an observer seat.

12. What is the Price Per Share (PPS) as set by this financing round?
13. How many shares does the VC receive through this investment?
14. How many total shares are now outstanding in the company?
15. What is the combined value of you and your founder's shares, immediately post the VC round?
16. What percentage of the outstanding shares does the angel now own? *Express as a 2-digit decimal, i.e. 15% = "0.15"*

You spend a few more years developing the product, growing the company and expanding the team. Immediately following the VC round, you set up an option pool with 1,000,000 shares in it, and over time have awarded all of these shares in option grants to new hires and existing employees.

There are now a few other companies entering your space, competition is heating up, and you and your team don't have a clear plan of how you are going to defeat the new entrants. You receive an acquisition offer for \$43M and decide to accept it. Per your employee stock option plan, any vested but unexercised options immediately convert into common shares.

17. To maximize payout, does the VC convert the preferred shares into common and receive sale distributions on a pro-rata basis (enter "1"), or choose 1x participating-preferred payout ("2")?
18. What is the VC payout through the acquisition, assuming the VC maximizes their distributions?
19. How much do you, as cofounder, receive from the sale of the company (ignoring taxes, etc)?
20. How much did each of the early employees have to pay to exercise their full 100k share grant, assuming the exercise price was set by the deal occurring immediately before it?
21. Assuming none of the early employees exercised their grants until the acquisition, what was the taxable "virtual" gain per share?
22. Assuming no cap gains but an AMT of 20%, what is the total tax owed per early employee?
23. How much will each early employee gain financially, in total (sale proceeds minus exercise cost minus AMT tax) as a result of the original 100k share grant?

Following the sale of the company, your cofounder wants to take the proceeds and invest it all in an improved technology that can extract new oil reserves out of tar sands, although at higher cost than current sources of oil. You, on the other hand, want to invest your proceeds in an incubator run by industry experts (not you) funding lower cost, abundant energy technologies. In the final questions, indicate which of the four quadrants you believe the investment approaches fall into, and explain why.

**optimistic-determinate = "1"**

**optimistic-indeterminate = "2"**

**pessimistic-determinate = "3"**

**pessimistic-indeterminate = "4"**

24. Which quadrant best describes your cofounder's perspective?
25. Which quadrant best describes your perspective, in this example?