FASTMATH

Modified: Aug 20, 2018

Quantitative Assessment Quiz

Instructions

The following problems and calculations are representative of the calculations required in Case Interviews at management consulting firms. In order to get a candid assessment of your quant skills, you limit yourself to **1 hour** to complete the quiz. Do not look at or review the problems or **Solution Guide** before beginning the quiz — reading the Solutions before solving the problems will provide an inaccurate assessment of your quant skills.

Solve the problems as if you were in a consulting interview, without using a calculator or a spreadsheet — pen and paper are permitted. I recommend that you print the problems and use the blank space on the sheets for pen-and-paper calculations. This way, you won't be glancing up and down between paper and your computer. , so you are not distracted by your computer. You can use separate sheets of scratch paper as needed.

In interviews, reaching a correct answer for quantitive problems is more important that speed. This means you should take as much time as you need to get the right answer — you won't receive much credit for reaching the wrong answer quickly.

Use a stopwatch (or a smartphone) and measure how much time you spend on solving these problems in minutes (and seconds). Try to complete all the problems (except the Extra Credit Problem) in **1 hour**. If you need more time, that's OK, but be aware of the overall time you take on the Quantitative Assessment Quiz. Once you are done, review the **Solutions and Evaluation Guidelines** to score yourself and interpret your score.

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Assessment Questions

1. What is $5{,}000 \times 17{,}000$? (4 Pts)

2. A major automobile manufacturer is launching a luxury electric sedan. They expect their average selling price to be $\$75{,}000$, and to sell $28{,}000$ cars next year. What will their expected revenue be from this car next year? (8 Pts)

3. What is $570 \div 15$? (4 Pts)

Give the following three answers as percentages to **three significant digits**. Example: $4 \div 16 = 25.0\%$

4. What is $1{,}200 \div 1{,}800$? (4 Pts)

5. What is $400 \div 2{,}400$? (6 Pts)

6. What is $340 \div 120$? (6 Pts)

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7. A firm had revenue of $\$500$ *Million* in 2013. Their revenue is expected to grow by 5% for the foreseeable future. What will their approximate revenue be in 2017 if these forecasts hold? (4 Pts)

8. Your client manufactures a product which costs $\$50$ per unit to produce. They want to have 20% margin on all sales. What should their sales price be? (8 Pts)

9. Your client sells 1.5 *Million* cases of canned food per year at $\$30$ per case. If they lower their prices by 10% which increases their sales volume by 20%, what is their percentage change in annual revenue? (14 Pts)

10. Your client sells a product at $\$30$ per unit and sells $140{,}000$ units per year. If they drop their price by 20%, what percentage increase in units sold do they need to break-even on revenue? (18 Pts)

11. Estimate the number of gas stations in the United States? (12 Pts)

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12. Your client manufacturers and sells a consumer product. Each unit sells for $75. Their factory has monthly rent of $80,000, utility costs of $50,000, and equipment maintenance costs of $70,000. The materials cost is $35 per unit, and the labor cost is $15 per unit.

A) How many units do they need to sell each month to break-even? (6 Pts)

B) How many units do they need to sell to have a profit of $1 *Million* per month? (6 Pts)

Total Time: _____

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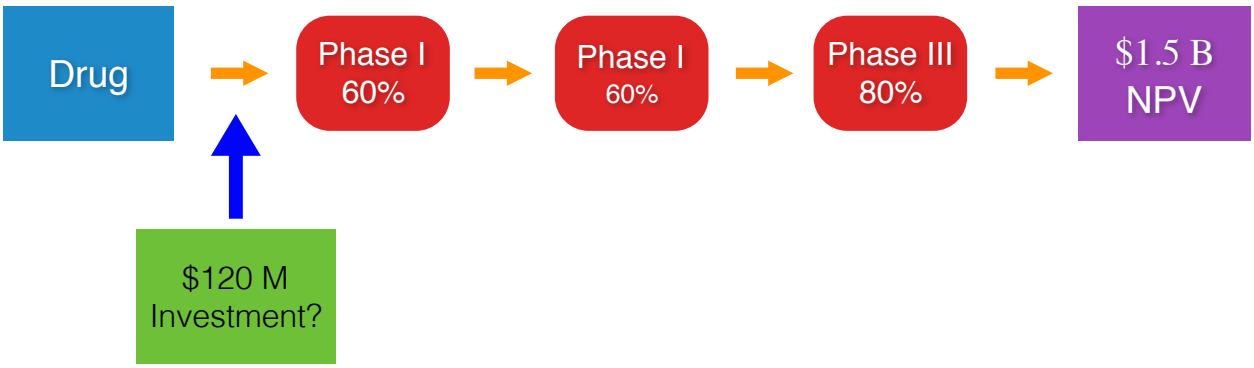
Extra Credit Problem

13. Your client is a pharmaceutical manufacturer who is about to begin FDA clinical trials on a new drug. If the new drug successfully passes all three phases of clinical trials, your client will gain a profit stream which has a **Present Value** of $\$1.5$ *Billion*. The historical success rates for each phase of the clinical trial are 60%, 40%, and 80% for Phase I, Phase II, and Phase III respectively. The drug must pass all three phases in order to generate revenue.



Your client is considering making a $\$120$ *Million* investment which would increase the number of participants in the Phase II trials which they believe will boost the success rate of the Phase II trials. This investment must be made prior to entering Phase I. What percentage increase in the Phase II success rate would your client need to achieve in order to justify this investment? (10 Pts)

