

Finance: free cash flow

[Entertainment](#), [Games](#)



The score of 85.00 out of 100.00.

You can attempt again if you'd like. Top of Form Please read all questions and instructions carefully. Note that you only need to enter answers in terms of numbers and without any symbols (including \$, %, commas, etc.). Enter all dollars without decimals and all interest rates in percentage with up to two decimals. Read the syllabus for example. The points for each question are listed in parentheses at the start of the question, and the total points for the entire assignment adds up to 100. You are strongly encouraged to use spreadsheets. Refer to Note on Sample Cash Flow Template.

Question 1 (5 points) The project with the highest IRR is always the project with the highest NPV.

Your Answer	-	Score	Explanation
True	-	-	-
False	?	5.00	Correct. Try now to sort this out in different contexts,
Total	-	5.00 / 5.00	-

Question Explanation

This is all about the fundamental difference between IRR and NPV.

Question 2 (10 points) Ann Arbor is considering offering public bus service for free. Setting up the service will cost the city \$0.6M (where M stands for million). The useful life of the buses is 25 years. Annual maintenance of the buses would cost \$50,000 per year and they would need a major overhaul in year 15 that will cost a total of \$350,000. This overhaul is in addition to the annual maintenance. Annual operating costs will begin at \$90,000 in year 1 and grow at 2% per year thereafter. By using the buses as advertisement space, the city will generate a revenue of \$75,000 in year 1 and it will grow at 4% per year thereafter. Reduced parking requirements and other benefits generated by the project will save the city \$100,000/year. The salvage value (price city can get in the future after maintenance) of the used buses in year 25 is expected to be \$150,000. What is the NPV of the bus proposal? Ann Arbor does not pay taxes and the discount rate is 5%. (Again, all cash flows except initial investments happen at the end of the year.) (You are strongly encouraged to use a spreadsheet.)

Your Answer	Score	Explanation
-10223	-	-
29847	10.00	Correct. You apparently have thought through issues.
31222	-	-

19323	-	-	-
Total	-	10.00 / 10.00	-

Question Explanation

A real-world problem with some simplifications in cash flows.

Question 3 (5 points) Alpha Inc. has the following two projects that it is considering, and it wants to choose one. Project A has an investment outlay/expense today of \$1,000, and its cash flows over the next three years are \$500, \$600, \$700. Project B has an outlay of \$2,000, and cash flows of \$1,000, \$1,200, and \$1,400. Which project should Alpha choose? (You can assume no taxes.)

Your Answer	-	Score	Explanation
Project A	-	-	-
Does not matter; both are essentially the same	-	-	-
Cannot make a choice based on information	?	5.00	Correct. What information is missing?
Project B	-	-	-

Total	-	5.00 / 5.00	-
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Question Explanation

This question is probing your comfort level and understanding of decision making, and the most common pitfall we confront all the time.

Question 4 (10 points) MangoTechnology has the following three projects that it is considering; it can choose only one. Project A has an investment outlay/expense today of \$100M, and its cash flows over the next three years are \$20M, \$40M, \$70M. Project B has an outlay of \$110M, and cash flows of \$40M, \$80M, \$20M; Project C has an outlay of \$120M and cash flows of \$0M, \$20M, and \$142M. Which project should the company choose if the cost of capital for similar projects is 6%?

Your Answer	-	Score	Explanation
Project B	-	-	-
Project C	-	-	-
Do not have enough information	?	0.00	You do have enough information. Try again.
Project A	-	-	-
Total	-	0.00 / 10.	-

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Question Explanation

This is an exercise in testing your knowledge pitted against our tendency to choose the incorrect criterion for making decisions.

Question 5 (5 points) To get from net operating profits after tax (NOPAT) to free cash flows (FCF), you need to ADD back depreciation, SUBTRACT capital expenditures and ADD net working capital (i. e. , current operating assets - current operating liabilities). (Free cash flow is another name for cash flows.)

Your Answer	-	Score	Explanation
False.	?	5.00	Correct. You understand the nature of " capital. "
True.	-	-	-
Total	-	5.00 / 5.00	-

Question Explanation

This is an important issue that makes you focus on differences between stocks and flows.

Question 6 (5 points) Last year your firm had revenue of \$20 million, cost of goods sold (COGS) of \$12 million, Selling, General; Administration costs (SG; A) of \$2 million, Account Receivables (AR) of \$6 million, Account Payables (AP) of \$4 million and Inventory of \$4 million. What will be the free cash flow next/this year if you boost revenue 6% and AR 12% while holding COGS growth to 3% and everything else remains the same as last year? (Assume no taxes and no new capital expenditures.) (You are encouraged to use a spreadsheet even for this specific type of question.)

Your Answer	-	Score	Explanation
4170000	?	0.00	Review the basics; see template and references.
6120000	-	-	-
7240000	-	-	-
5250000	-	-	-
Total	-	0.00 / 5.00	-

Question Explanation

Cash flow estimation for a specific year.

Question 7 (15 points) Rain in Spain (RiS) is a manufacturer of high-quality raincoats. Currently, the retail price of each raincoat is \$70 and is produced at a cost of \$45. This past year, they sold 50, 000 raincoats and they expect this number to grow each year by 6% each year for the next 10 years. The operations team at RiS recently brought to your attention a new technology that could lower the cost of production. This technology requires an upfront fixed investment of \$2, 000, 000 and has the capacity to produce up to 90, 000 raincoats per year at a 12% lower cost per unit. There is no increased working capital need due to this new technology, and no value of the machine/technology after 10 years. What is the NPV of investing in the new technology? Ignore taxes and assume a discount rate of 14%. (Hint: Think incrementally; the difference between the world without and with this new technology! Also, ignoring taxes will be a big help if you think right.) (Enter just the number without the \$ sign or a comma; round off decimals. (You are strongly encouraged to use a spreadsheet.)

Answer for Question 7

You entered:

Your Answer	-	Score	Explanation
-150683	?	15. 00	Correct. You exhibit a clear understanding of how to do incremental analysis.
Total	-	15. 00 / 15.	-

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Question Explanation

A probing question that is all about the creation of value; incremental value.

Question 8 (15 points) Fresh off the excitement of the 2012 London Olympic Games, you decide that you want your firm to take advantage of the profits to be made for the 2016 games in Rio de Janeiro. To do so you plan to open a factory in Brazil. After examining the idea, your CFO projects revenues next year (2013) to be \$15 million and costs to be \$9 million. Both of these are expected to grow at a rate of 25% per year as the excitement for the games builds. Your firms face a 35% tax rate, a 14% discount rate and you can depreciate your new investment using the straight-line method over the four years leading up to the games, at which point the value of the venture moving forward will be \$5 million. (This \$5 million is the terminal value that is in year 4 (that is, 2016) dollars and is the PV of all cash flows year 5 and beyond. The capital expenditure for this project is \$12M. What is the NPV of the project? Assume that you have no significant working capital costs.

(Enter just the number without the \$ sign or a comma; round off decimals.)

(You are strongly encouraged to use a spreadsheet.)

Answer for Question 8

You entered:

Your Answer	-	Score	Explanation
9815100	?	15. 00	Correct. You know how to set up and execute a valuation exercise, albeit a simplified one.
Total	-	15. 00 / 15. 00	-

Question Explanation

A valuation exercise includes most of the elements of a real-world situation.

Question 9 (15 points) Starbucks is considering opening another store in Chicago. A store is expected to have a long economic life, but the valuation horizon is 7 years. The store in Chicago is expected to create revenues of \$3M in the first year and they are likely to grow at 2% per year thereafter. The cost of goods sold is \$1.2M in year 1 and they are also expected to grow at 2% per year thereafter. Selling and administration costs are likely to be \$0.5M in the first year and then grow at 5%. The tax rate is 35%. Starbucks is so good at managing its stores that working capital increases can be assumed to be negligible. But Starbucks will have to invest \$3.5M in purchasing a store (with land). The good news is that this outlay can be depreciated straight-line over 7 years. Also, Starbucks has estimated that the terminal value in year 7 dollars will be \$10M. This value is the value of all cash flows in year 8 and beyond. What is the NPV of opening this new store if the appropriate discount rate is 7.75%? (Again, all cash flows except initial

investments happen at the end of the year. Enter just the number without the \$ sign or a comma; round off decimals.) (You are strongly encouraged to use a spreadsheet.)

Answer for Question 9

You entered:

Your Answer	-	Score	Explanation
7879584	?	15.00	Correct. You are now building spreadsheet models.
Total	-	15.00 / 15.00	-

Question Explanation

It is time to do a more complete project analysis. Strongly encourage the use of spreadsheets to build cashflows, though remember that you can do it step by step as well.

Question 10 (15 points) Big Blue Granite (BBG) needs to purchase a new saw for creating their top quality countertops. Saw A costs \$250,000 with \$4,000 of annual maintenance costs for the first year that will increase by 5% each year for the 7-year life of the saw. Saw B costs \$150,000 with \$10,000 of annual maintenance costs for the first year that will increase by 15% each

year for the 4-year life of the saw. Which saw should BBG choose? What is the annualized cost of this choice? Assume a discount rate of 12%, and ignore all taxes.

Your Answer	-	Score	Explanation
(B, 46794)	-	-	-
(B, 49983)	-	-	-
(A, 59331)	?	15.00	Correct. You know how to figure out the true annualized cost.
(A, 40367)	-	-	-
(A, 38682)	-	-	-
(B, 61624)	-	-	-
Total	-	15.00 / 15.00	-