



Revisionstation

IA

Investment Appraisal



Tricky Topics
REVISIONSTATION

Answers



Payback method walkthrough answer (page 3)

	Project A	Project B	Project C	Project D
Year 0	-£150,000	-£67,000	-£215,000	-£89,000
Year 1	£50,000	£60,000	£45,000	£70,000
Year 2	£50,000	£14,000	£47,000	£65,000
Year 3	£50,000	£16,000	£49,000	£66,000
Year 4	£60,000	£18,000	£51,000	£68,000
Year 5	£65,000	£20,000	£53,000	£66,000
Payback	3 years	1 year 6 months	4 years 6 months	1 year 4 months



ARR method walkthrough answer (page 5)

	Project A	Project B	Project C	Project D
Year 0	-£150,000	-£67,000	-£215,000	-£89,000
Year 1	£50,000	£60,000	£45,000	£70,000
Year 2	£50,000	£14,000	£47,000	£65,000
Year 3	£50,000	£16,000	£49,000	£66,000
Year 4	£60,000	£18,000	£51,000	£68,000
Year 5	£65,000	£20,000	£53,000	£66,000
ARR %	16.67%	18.21%	2.79%	55.28%



NPV method walkthrough answer (page 7)

Year	Discount factor	Net cash flow	Discounted cash flow
1	0.990	£85,000	£84,150
2	0.980	£75,000	£73,500
3	0.971	£60,000	£58,260
4	0.961	£45,000	£43,245
5	0.951	£30,000	£28,530
NPV:			£67,685



Summary activity answer (page 8)

Payback	ARR	NPV
4. Simple to calculate	1. Shows profitability	2. Shows the future value of money
8. Calculates the length of time taken to repay the initial capital cost	6. Easy to compare against a 5% savings account	3. Uses a discounted rate table
10. Used to assess the amount of risk involved by calculating how long it takes to recover the cost of the investment	7. Shows how hard the money is working for the investor	5. Estimates total income over a lifespan (Possibly could argue this for ARR too)
		9. Shows that the value of money is affected by interest rates



Answers to practice questions

Answer to practice question 1 on page 9

Payback:

- **The new premises will cost £12 million**
- **£2m + £3m + £3m + £4m = £12 million**
- **There are 4 years' worth of net cash flow so this means the business premises will pay back in 4 years**

ARR:

- **Add up all the cash inflow for the lifetime of the project £2m + £3m + £3m + £4m + £5m = £17m**
- **Minus the original cost of the project £17m – £12m = £5m**
- **Divide by the number of years the project runs for £5m ÷ 5 years = 1**
- **Divide by the original cost of the project and multiply by 100**
- **£1m ÷ £12m x 100 = 8.33%**

Answer to practice question 2 on page 10

Payback: 2 years 6 months

ARR: 12.50%

NPV:

- **Multiple the discount factor by the net cash flow for all of the years**
- **0.935 x £50,000 = £46,750**
- **0.873 x £50,000 = £43,650**
- **0.816 x £40,000 = £32,640**
- **0.763 x £40,000 = £30,520**
- **Now add all of these discounted figures together = £153,560**
- **Minus the original cost of the project £153,560 – £120,000 = £33,560**



Answer to practice question 3 on page 11

Payback: 3 years 4 months (round up to 4 months, always round up the nearest month)

ARR: 10%

Answer to practice question 4 on page 12

Payback: 5 years 3 months

ARR: 12.10%



Answer to practice question 5 on page 13

NPV: £3.58 million

Comment: £50 million invested at 5% would yield £2.5 million over the same period, so this is a more profitable investment than putting the money into a bank savings account. This is an expensive investment; however, it seems a reasonable amount for the electric car industry. This NPV calculation doesn't take into account any possible economic shocks over the lifetime of the project.

The decision to go ahead with the project may also be linked to the objectives of the business. In this example XYZ make electric cars and so their objectives may be to build cars with more quality or to maximise efficiency of production. You could also discuss the electric car in terms of its ability to generate important sales for the business which may have an impact on revenue and market share, important in a market which is global and very competitive.

Answer to practice question 6 on page 14

Payback: 2 years and 3 months

ARR: 20% good value in comparison with a bank savings account which may yield only 5%