

## Topic: Average rate of return - Answers

**Q1**

The Codfather is a modern fish 'n' chip restaurant that is located on the outskirts of a small town. Since opening, the Codfather has been extremely successful, as customers can dine in an American style restaurant for the same price as buying fish 'n' chips from the local takeaway. Michael Fish, the owner, has recently made the decision to open up another branch in a nearby local town. Michael expects the expansion to cost him £250,000, but he also expects to make an extra profit of £350,000 in total from this investment, over the next 8 years.

**Activity: Calculate the average rate of return for Michael's investment** (give your answer to **two** decimal places)

Total profit = £350,000 - £250,000 = £100,000

Average annual return = £100,000 / 8 = £12,500

**ARR = (£12,500 / £250,000) x 100 = 5.00%**

**Q2**

Sugarbabes Ltd, a sugar factory located just outside Nottingham, wishes to buy a new piece of machinery which it hopes will increase its efficiency. The machinery will cost £100,000 and is expected to last for four years. The expected profits for each year are shown in the graph below.



**Activity: Using the information provided and the data in the graph, calculate the average rate of return for this investment** (give your answer to **two** decimal places)

Total profit = (£35,000 + £40,000 + £45,000 + £40,000) - £100,000 = £60,000

Average annual return = £60,000 / 4 = £15,000

**ARR = (£15,000 / £100,000) x 100 = 15.00%**

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**Q3**

Florist Gump, an established florist operating in the Midlands, is looking to expand by offering a delivery service. The owner, Daisy, is looking to buy a van, which she estimates will cost her £15,000 and will last her for 5 years. She believes that providing a home delivery service will increase her profit by £5,000 a year.

**Activity: Calculate the average rate of return for Daisy's investment** (give your answer to two decimal places)

Total profit = (£5,000 x 5) = £25,000 - £15,000 = £10,000

Average annual return = £10,000 / 5 = £2,000

**ARR = (£2,000 / £15,000) x 100 = 13.33%**

**Q4**

Fake That is a tanning studio situated in London. The owners are looking to buy a new sunbed for the business. The expected revenue and costs of this investment are shown in the table below.

Year	Revenue (£)	Cost (£)	Profit (£)
0		10,000	(10,000)
1	10,000	3,000	7,000
2	10,000	3,000	7,000
3	7,000	2,250	4,750

**Activity: Using the information provided and the data in the table, calculate the profit and the average rate of return for this investment** (give your answer to two decimal places)

Total profit = (£7,000 + £7,000 + £4,750) - £10,000 = £8,750

Average annual return = £8,750 / 3 = £2916.67

**ARR = (£2,916.67 / £10,000) x 100 = 29.17%**