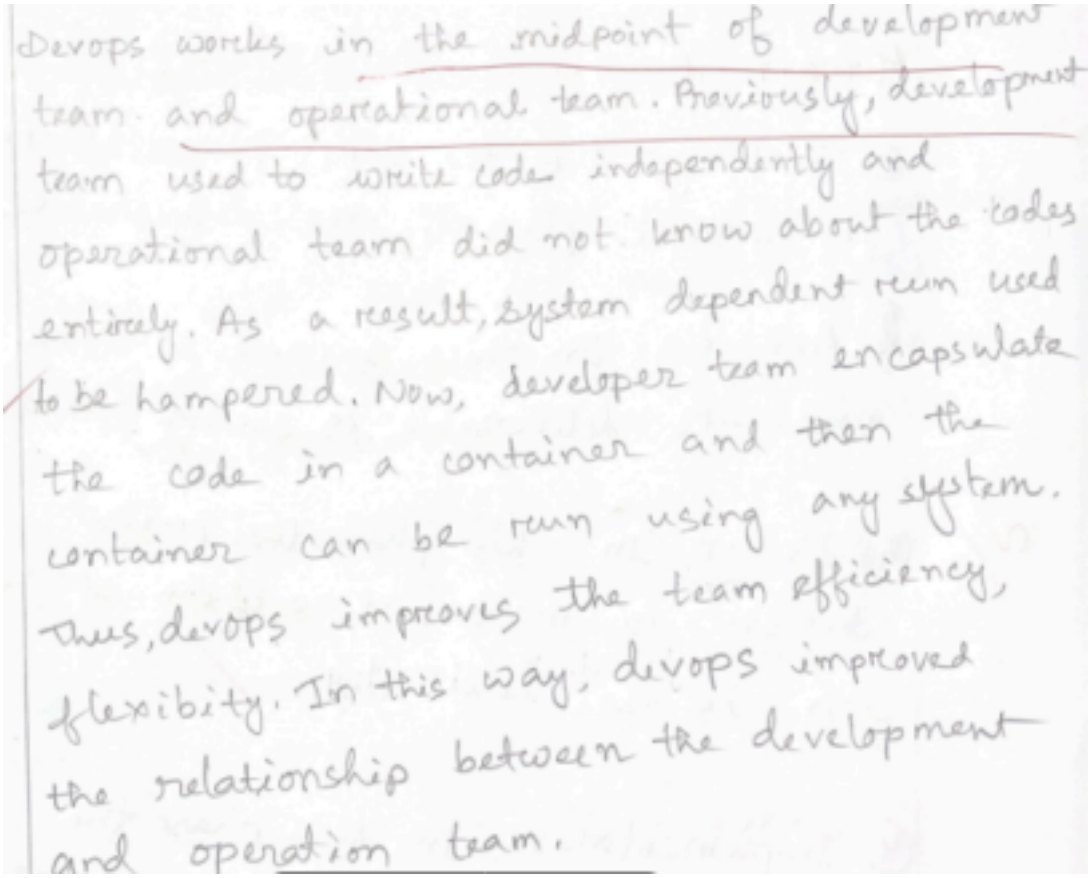
1. **[2 marks]** BRTC wants to launch a fleet of autonomous buses. RoadX company has been awarded the contract to build these buses. The buses will have to comply with Bangladesh traffic laws and regulations. Each bus will operate on specific routes; each bus will have specific stops. Initially, the buses will operate in the Gulshan area and later the operation area will be increased in other parts of Dhaka and you will have to update the navigation software to support new routes. RoadX has selected the Waterfall Development methodology to develop the system. Explain whether the choice of development methodology is appropriate or not.

2. **[2 marks]** How can we assess a project's economic value?

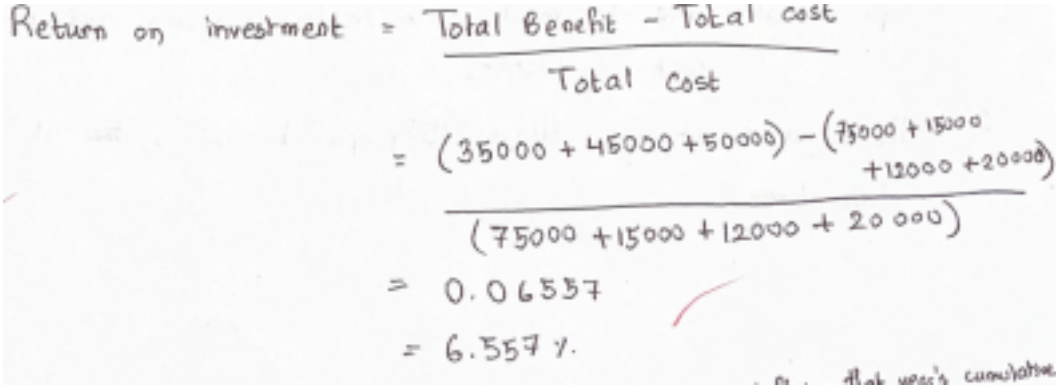
   Answer: BEP, NPV, ROI

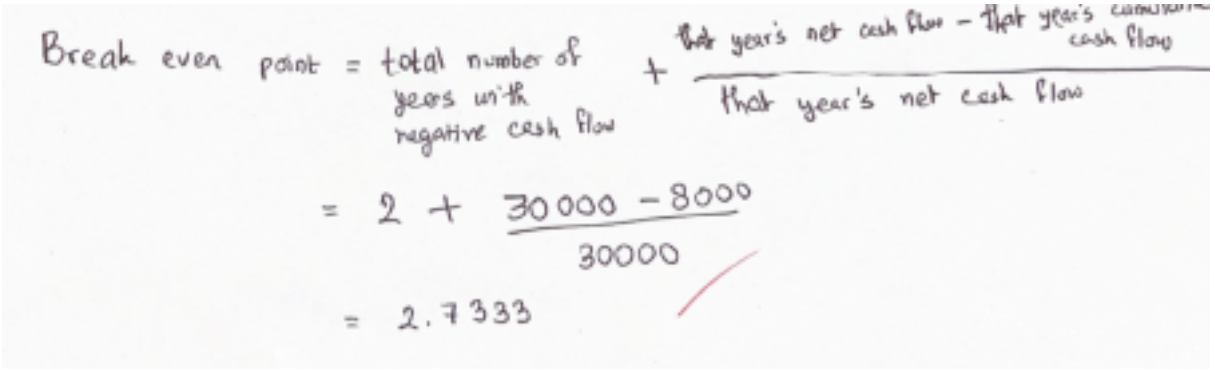
3. **[2 marks] Explain** how the relationship between the development and operation teams is improved by DevOps.


Devops works in the midpoint of development team and operational team. Previously, development team used to write code independently and operational team did not know about the codes entirely. As a result, system dependent reun used to be hampered. Now, developer team encapsulate the code in a container and then the container can be reun using any system. Thus, devops improves the team efficiency, flexibity. In this way, devops improved the relationship between the development and operation team.

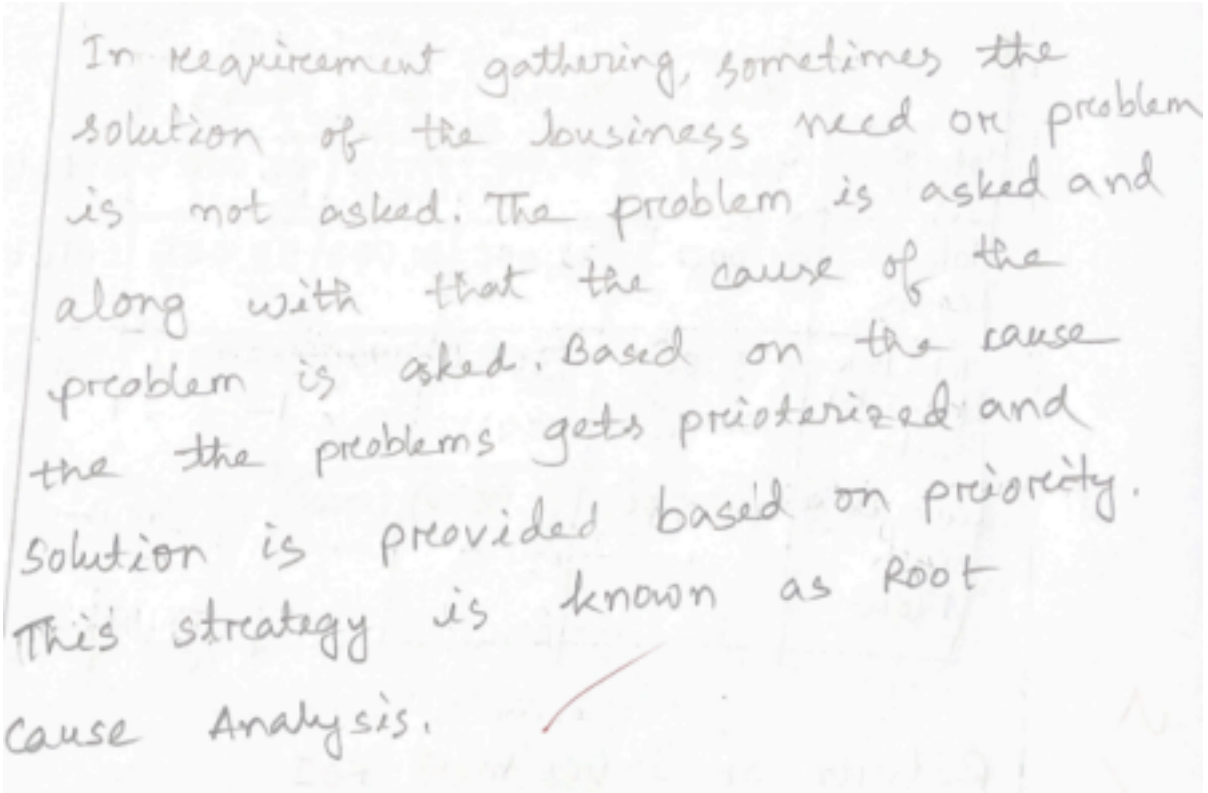
4. **[2+2 marks]** Calculate the Break-Even Point and Return of investment using the following information.

| | Year 0 | Year 1 Year 2 Year 3 |
|---|---|---|
| Total benefits | | 35,000 45,000 50,000 |
| Total costs 75,000 | | 15,000 12,000 20,000 |




1. **[2 marks] Describe** the Root cause analysis strategy in short.



2. **[2+2 marks]** Calculate the Break-Even Point and Return of investment using the following information.

| | Year 0 | Year 1 | Year 2 | Year 3 |
|---|---|---|---|---|
| Total benefits 40,000 | 45,000 | 40,000 | 60,000 | |
| Total costs 82,000 | 32,000 | 20,000 | 27,000 | |

| | Year 0 | Year 1 | Year 2 | Year 3 | |
|---|---|---|---|---|---|
| Total Benefits | 40,000 | 45,000 | 40,000 | 60,000 | 185000 |
| Total Costs | 82,000 | 32,000 | 20,000 | 27,000 | 161000 |
| Total Benefits - Total Costs | (42000) | 13000 | 20000 | 33,000 | 24000 |
| cumulative cash Flow | (42000) | (29000) | (9000) | 24000 | |

Return on Investment, ROI

$$= \frac{\text{Total Benefits} - \text{Total Costs}}{\text{Total Costs}}$$

$$= \frac{24000}{161000}$$

$$= 0.149$$

$$= 14.9\%$$

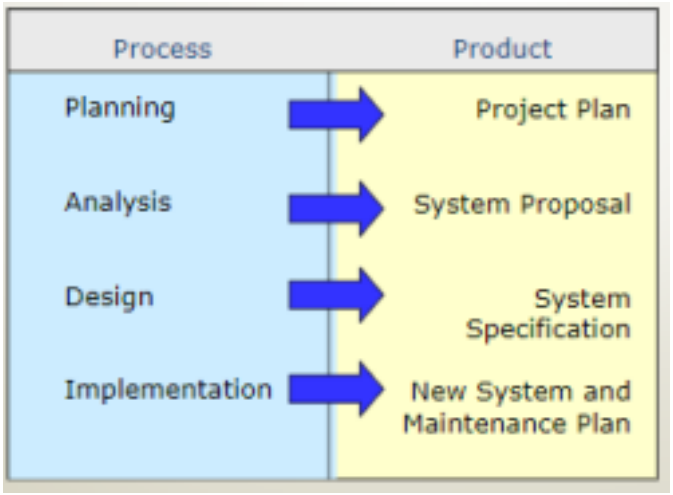
Break Even Point (BEP):

$$= \text{Years in negative cash flow} + \frac{\text{That year's net cash flow} - \text{That year's cumulative cash flow}}{\text{That year's net cash flow}}$$

$$= 3 + \frac{33,000 - 24,000}{33,000}$$

$$= 3.2727$$

3. **[2 marks] Describe** the 4 main processes of the software life cycle and what are the deliverables of those processes.




4. **[2 marks]** A foster-care management system is a program that's designed to help to seek an individual to adopt a child. The system can verify a person requesting information and track an existing child's biodata in response to that request. Identify two business requirements of a foster-care management system.