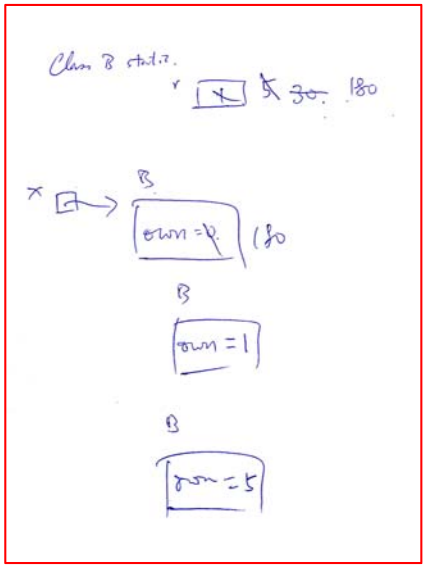
Q1.

```
public class Product{

    private Company company;

    public Product(Company company) {
        this.company = company;
    }

    public boolean producedBy(Company c) {
        return company==c;
    }

}
```

```
import java.util.ArrayList;

public class SalesPerson {

    private ArrayList<Product> soldList;

    public SalesPerson() {
        soldList = new ArrayList<>();
    }

    public void sell(Product p) {
        soldList.add(p);
    }

    public void earnFrom(Company c) {
        int count=0;
        for (Product p: soldList)
             if (p.producedBy(c))
               count++;
        System.out.println(count + " points");
    }

}
```

Q2. Output of the program (1 mark, need to match your drawing): _____ 180

Drawing (4 marks):



Q3. (a) For each case, choose your answer from the choices: A, B, or C.

Case 1: The file *marks.txt* contains 2 marks: `40 80`. Your answer: _____ B

A.
```
Average is: 60
Report finished without error.
```

B.
```
Average is: 60
File closed.
Report finished without error.
```

C.
```
Average is: 60
```

Case 2: The file *marks.txt* exists but is empty. Your answer: _____ B

A.
```
Content is empty!
Report finished without error.
```

B.
```
Content is empty!
File closed.
Report finished without error.
```

C.
```
Content is empty!
```

Case 3: The file *marks.txt* does not exist. Your answer: _____ A

A.
```
Cannot open marks file!
Report finished without error.
```

B.
```
Cannot open marks file!
Content is empty!
File closed.
Report finished without error.
```

C.
```
Cannot open marks file!
```

Q3. (b)

```
public static void main(String[] args)
{
	ArrayList<Integer> allMarks = new ArrayList<>();



	Scanner f = null;

	try {

	    f = new Scanner(new File("marks1.txt"));

	    while (f.hasNext()) {
		int mark = f.nextInt();
		allMarks.add(mark);
	    }

	    analyzeMarks(allMarks);
	    System.out.println("Report finished without error.");

	} catch (FileNotFoundException e) {
	    System.out.println("Cannot open marks file!");
	} catch (InputMismatchException e) {
	    System.out.println("Cannot read mark number!");
	} catch (ContentIsEmpty e) {
	    System.out.println(e.getMessage());
	} finally {
	    if (f != null) {
		f.close();
		System.out.println("File closed.");
	    }
	}

}
----------------------------------------------------------------
private static void analyzeMarks(ArrayList<Integer> marks)    throws ContentIsEmpty
{


	if (marks.size() == 0)
	    throw new ContentIsEmpty();

	int sum = 0;

	for (Integer m : marks)
	    sum += m;

	System.out.println("Average is: " + sum / marks.size());



}
```

```
public class ContentIsEmpty extends Exception {
    public ContentIsEmpty() {super("Content is empty!");}
    public ContentIsEmpty(String msg) {super(msg);}
}
```