Rachel Boyce is a president of a company that manufactures electronic components, has a number of questions concerning quality and quality costs. She has heard a few things about quality and has asked you to respond to the following:

1. What does it mean to have a quality product or service? Explain how product quality and conformance are related.
2. Yesterday, my quality manager told me that we need to refine what we mean by a defective product. He said that confirming to specifications ignores the cost of product variability and that further reduction of product variability is a veritable gold mine-just waiting to be mined. What did he mean?

Benton Company reported sales of $8,100,000 in 2011. At the end of the calendar year, the following quality costs were reported

|  |  |
| --- | --- |
| Design review | $405000 |
| Recalls | 135000 |
| Reinspection | 67500 |
| Materials inspection | 54000 |
| Quality training | 135000 |
| Process acceptance | 67500 |
| Scrap | 47250 |
| Lost sales | 270000 |
| Product inspection | 40500 |
| Returned goods | 128250 |

Required:

1. Prepare a quality cost report
2. Prepare a graph (pie or bar graph) that shows the relative destitution of quality costs, and comment on the distribution.

Reading company reported the following sales and quality costs for the past four years. Assume that all quality costs are variable and that all changes in the quality costs rations are due to quality improvement program.

|  |  |  |
| --- | --- | --- |
| Year | Sales revenue | Quality costs as percent of revenue |
| 1 | $10000000 | 21% |
| 2 | 11000000 | 18 |
| 3 | 11000000 | 14 |
| 4 | 12000000 | 10 |

Required:

1. Compute the quality cost for all four years. By how much did net income increase from year 1 to year 2 because of quality improvements? From year 2 to year 3? From year 3 to year 4?
2. The management of reading company believes it is possible to reduce quality costs to 2.5 percent of sales. Assuming sales will continue at year 4 levels; calculate the addition profit potential facing reading. Is the expectation of improving quality and reducing costs to 2.5 percent of sales realistic? Explain.
3. Assume that Reading produces one type of product, which is sold on a bid basis. In years 1 and 2, the average bid was $200. In year1, total variable costs were $125/unit. In year3, competition forced the bid to drop to $190. Compute the total contribution margin in year 3 assuming the same quality costs as in year 1. Now, compute the total contribution margin in year3 using the actual quality costs for year 3. What is the increase in profitability resulting from the quality improvements made from year 1 to year 3?

For years, companies dealt with pollution problems through compliance management (ensuring that a company follows environmental laws and regulations as cheaply as possible). No effort was made to improve environmental regulations (improving environmental performance that satisfied environmental cost has been proposed: (1) ecoefficiency and (2) guided ecoefficiency.

Required:

1. Explain why ecoefficieny may be a better view of the world than that espoused by compliance management. Discuss factors that may support this view.
2. Some believe that even if the ecoefficient view is true, regulatory intervention still may be needed. The type of intervention, however, must be carefully designed. Explain what is meant by properly designed regulation, and identify the key assumptions that must hold for the guided ecoefficincey view to be valid.

Coyle pharmaceuticals produces two organic chemicals (Org AB and Org XY) used in the production of two of its most wild-selling anti-cancer drugs. The controller and environmental manager have identified the following environmental activities and cost associated with two products:

|  |  |  |  |
| --- | --- | --- | --- |
|  | Org AB |  | Org XY |
| Pounds produced | 7500000 |  | 18750000 |
| Packing materials (lbs) | 2250000 |  | 1125000 |
| Energy usage (kilowatt-hours) | 750000 |  | 375000 |
| Toxin releases (lbs into air) | 1875000 |  | 375000 |
| Pollution control (machine hrs) | 300000 |  | 75000 |
| Cost of activities: |  |  |  |
| Using packaging materials |  | $3375000 |  |
| Using energy |  | 900000 |  |
| Releasing toxins (fines) |  | 450000 |  |
| Operating pollution control equipment |  | 1050000 |  |

Required:

1. Calculate the environmental cost per pound for each product. Which of the new products appears to cause the most degradation to the environment?
2. In which environmental category would you classify excessive use of the materials and energy?
3. Suppose that the toxin release cause health problems for those who live near the chemical plant. The costs, due to missed work and medical treatments, are estimated at $2025000/year. How would assignment of these costs change the unit cost? Should they be assigned?