

Name _____

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Analyzing Probabilities and Decisions - Guided Lesson Explanation

Explanation#1

We have to pick the lowest cost of two options. We have to remember that we had 35,560 customers that own this product. Let's evaluate the projected cost of each scenario.

Scenario A) Issue A Recall of the Laptops: -

3 parts of total cost = Cost to fix + Cost to Contact + Fine

1) Total Cost per laptop = Total Number of Laptop x \$963.

Total Number of Laptop = $35,560 \times 0.732$ (equal to 73.2%) = 26,030 laptop

Total Cost per laptop = 26,030 laptop x \$963 = \$25,066,890.

2) Cost to Contact Customers = Number of Customers x \$25

Cost to Contact Customers = $35,560 \times \$25 = \$889,000$

3) Fine = \$240,000.00

Total cost of Scenario A = $\$25,066,890 + \$889,000 + \$240,000.00$

Total cost of Scenario A = \$26,195,890

Scenario B) Settle Lawsuits: -

2 parts of total cost = Cost of Plaintiffs Award + legal fees

1) Cost of Plaintiffs Award = Number of plaintiffs x (Legal Fees Per Plaintiff + Award Per Plaintiff)

Number of plaintiffs = $35,560 \times \text{Active Plaintiff Percentage}$

Number of plaintiffs = $35,560 \times 0.376$ (37.6% as a decimal)

Number of plaintiffs = 13,370.56

Cost of Plaintiffs Award = Number of plaintiffs x (Legal Fees Per Plaintiff + Award Per Plaintiff)

Cost of Plaintiffs Award = $13370.56 \times (\$78 + \$685)$

Cost of Plaintiffs Award = \$10,201,737.28



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2) Legal Fees = \$56000

Total cost of Scenario B = Cost per plaintiff + legal fees

Total cost of Scenario B = \$10,201,737.28 + \$56000

Total cost of Scenario B = \$10,257,737.28

Now compare both scenarios:

Total cost of Scenario A = \$240,000.00

Total cost of Scenario B = \$10,257,737.28

Scenario A is much less expensive for the company.

Explanation#2

We have to calculate the total number of predicted points they could amass. We will need to evaluate each of the three methods of scoring points.

Field Goals: If they were allowed 15 tries at a 3 point field hit, they would be successful 75.6% of the time:

$$15 \times 3 \times .756 = 34 \quad (\text{Result in 34 points.})$$

Conversion by run: If they were allowed 15 tries at 6 points (if successful), they would be successful 63.4% of the time:

$$15 \times 6 \times .634 = 57 \quad (\text{Result in 57 points.})$$

Conversion by Passing Success: If they were allowed 15 tries at a 6 points per conversion, they would be successful 84% of the time:

$$15 \times 6 \times .84 = 76 \quad (\text{Result in 76 points.})$$

Based on this, they would score the most points by going for a conversion by passing each time they had a chance at an extra point.



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Explanation#3

We have to pick the lowest cost of two options. We have to remember that we had 458,567 customers that own this product. Let's evaluate the projected cost of each scenario.

Scenario A) Issue A Recall of the Laptops: -

3 parts of total cost = Cost to fix + Cost to Contact + Fine

1) Total Cost = Total Number of Bike x \$963.

Total Number of Bike = $458,567 \times 0.843$ (equal to 84.3%) = 386,571.98

Total Cost per Bike = $386,571.98 \text{ bike} \times \$548 = \$211,841,445.58$

2) Cost to Contact Customers = Number of Customers x \$34

Cost to Contact Customers = $458,567 \times \$34 = \$15,591,278$

3) Fine = \$652,000.00

Total cost of Scenario A = $\$211,841,445.58 + \$15,591,278 + \$652,000.00$

Total cost of Scenario A = \$228,084,723.58

Scenario B) Settle Lawsuits: -

2 parts of total cost = Cost of Plaintiffs Award + legal fees

1) Cost of Plaintiffs Award = Number of plaintiffs x (Legal Fees Per Plaintiff + Award Per Plaintiff)

Number of plaintiffs = $458,567 \times \text{Active Plaintiff Percentage}$

Number of plaintiffs = $458,567 \times 0.458$ (45.8% as a decimal)

Number of plaintiffs = 210,023.68

Cost of Plaintiffs Award = Number of plaintiffs x (Legal Fees Per Plaintiff + Award Per Plaintiff)

Cost of Plaintiffs Award = $210,023.68 \times (\$64 + \$345)$

Cost of Plaintiffs Award = \$85,899,685.12

2) Legal Fees = \$21,050



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Total cost of Scenario B = Cost per plaintiff + legal fees

Total cost of Scenario B = $\$85,899,685.12 + \$21,050$

Total cost of Scenario B = $\$85,920,735$

Now compare both scenarios:

Total cost of Scenario A = $\$228,084,723.58$

Total cost of Scenario B = $\$85,920,735$

Scenario B is much less expensive for the company.

