**(Two questions)**

**Problem 7-17 (Comparing traditional and ABC product margins)**

Smoky Mountain Corp makes two types of hiking boots. Data appear below:

|  |  |  |
| --- | --- | --- |
|  | **Xtreme** | **Pathfinder** |
| Selling price per unit | $140.00 | $99.00 |
| Direct materials per unit | $72.00 | $53.00 |
| Direct labor per unit | $24.00 | $12.00 |
| Direct labor-hours per unit | 2.0 DLHs | 1.0 DLHs |
| Estimated annual production | 20,000 units | 80,000 units |
|  |  |  |
|  |  |  |
| The company has a traditional costing system in which MOH is applied to units of direct labor-hours. Data appear below: | | |
| Estimated total manufacturing overhead | | $1,980,000 |
| Estimated total direct labor-hours |  | 120,000 DLHs |

**Question #1 (see the next page for question #2):**

1. Computer product margins for the Xtreme and Pathfinder products under the traditional costing methods.

**Fill your answers in the chart:**

|  |  |  |  |
| --- | --- | --- | --- |
|  | *Xtreme* | *Pathfinder* |  |
| Sales | $2,800,000 | $7,920,000 |  | |
| Direct materials | 1,440,000 | 4,240,000 |  | |
| Direct labor | 480,000 | 960,000 |  | |
| Manufacturing overhead  applied @ $ ? per  direct labor-hour |  |  |  | |
| Total manufacturing cost |  |  |  | |
| Product margin |  |  |  | |

**Question #2:**

1. The company is considering replacing the traditional costing system with ABC system that would assign MOH to the following four activity cost pools (“other” includes organization-sustaining costs and idle capacity costs):

|  |  |  |  |
| --- | --- | --- | --- |
| Activities and Activity Measures | Estimated Overhead | Expected activity | |
|  |  | Xtreme | Pathfinder |
| Supporting direct labor (direct labor-hour) | $783,600 | 40,000 | 80,000 |
| Batch setups (setups) | $495,000 | 200 | 100 |
| Product sustaining (number of products) | $602,400 | 1 | 1 |
| other | $99,000 | NA | NA |
| Total | $1,980,000 |  |  |

**Fill your answers in the chart:**

**Step1: calculate the activity rate**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Activity Cost Pools | (a) Total Cost | | (b) Total Activity | | (a) ÷ (b) Activity Rate | | |
|  | Supporting direct labor |  |  | |  | |  |  | |
|  | Batch setups |  |  | |  | |  |  | |
|  | Product sustaining |  |  | |  | |  |  | |

**Step 2: Calculate product margins under ABC system**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | | *Xtreme* | *Pathfinder* |  |
| Sales | $2,800,000 | | $7,920,000 |  | |
| Direct materials | 1,440,000 | | 4,240,000 |  | |
| Direct labor | 480,000 | | 960,000 |  | |
| Supporting direct labor |  | |  |  | |
| Batch setups |  | |  |  | |
| Product sustaining |  | |  |  | |
| Total cost |  | |  |  | |
| Product margin |  | |  |  | |