

Student Name: Chengyang Zhou Date: 3/7  
 (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
<u>Estimated</u> annual production	20,000 units	80,000 units
<b>Actual DLHs</b>	<b>40,000</b>	<b>80,000</b>

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

$$POHR = \frac{\$1,980,000}{120,000} = \$16.5/DLH$$

**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.....	$\$16.5 \times 40,000$ \$2,580,000	$\$16.5 \times 80,000$ \$1,320,000
Total manufacturing cost.....	\$2,580,000	\$1,320,000
Product margin.....	\$220,000	\$1,400,000

Student Name: C.Y. ZhouDate: 3/7**Question #2:**

2. 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	— 120,000
Batch setups (setups)	\$495,000	200	100	— 300
Product sustaining (number of products)	\$602,400	1	1	— 2
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.....	\$783,600	120,000	\$6.53 /DLH
Batch setups.....	\$495,000	300	\$1,650 /setup
Product sustaining...	\$602,400	2	\$301,200 /product

**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.....	6.53 × 40,000	6.53 × 80,000
Batch setups.....	1,650 × 200	1,650 × 100
Product sustaining.....	301,200	301,200
Total cost.....	\$	\$
Product margin.....	— \$12,400	\$1,731,400