AC202 Quiz 6 **Name**
Student ID#:

Problem 1. Eccles Corporation uses an activity-based costing system with three activity cost pools. The company has provided the following data concerning its costs and its activity based costing system:

Costs:

Wages and salaries.....	$340,000
Depreciation	180,000
Utilities.....	200,000
Total	$720,000

Distribution of resource consumption:

	Activity Cost Pools			
	Assembly	Setting Up	Other	Total
Wages and salaries.....	20%	60%	20%	100%
Depreciation	15%	35%	50%	100%
Utilities.....	5%	55%	40%	100%

How much cost, in total, would be allocated in the first-stage allocation to the Assembly activity cost pool?

Total Assembly Cost:

Wages and salaries: 20% × $340,000	$ 68,000
Depreciation: 15% × $180,000	27,000
Utilities: 5% × $200,000	10,000
Total	$105,000

Problem 2 Marine, Inc., manufactures a product that is available in both a flexible and a rigid model. The company has made the rigid model for years; the flexible model was introduced several years ago to tap a new segment of the market. Since the introduction of the flexible model, the company's profits have steadily declined, and management has become concerned about the accuracy of its costing system. Sales of the flexible model have been increasing rapidly.

Overhead is applied to products on the basis of direct labor-hours. At the beginning of the current year, management estimated that $600,000 in overhead costs would be incurred and the company would produce and sell 1,000 units of the flexible model and 10,000 units of the rigid model. The flexible model requires 2 hours of direct labor time per unit, and the rigid model requires 1 hours. Direct materials and direct labor costs per unit are given below:

	Flexible	**Rigid**
Direct materials cost per unit.....	$110	$80
Direct labor costs per unit	$30	$15

AC202 Quiz 6 **Name**
Student ID#:

1. Compute the predetermined overhead rate using direct labor-hours as the basis for allocating overhead cost to products. Compute the unit product cost for each model.

The company's estimated total direct labor-hours for the year can be computed as follows:

Flexible model: 1,000 units × 2.0 DLH per unit	2,000
Rigid model: 10,000 units × 1.0 DLH per unit	10,000
Total direct labor-hours	12,000

Using direct labor-hours as the allocation base, the predetermined overhead rate would be:

$$\text{Predetermined overhead rate} = \frac{\text{Total manufacturing overhead}}{\text{Total direct labor-hours}}$$

$$= \frac{\$600{,}000}{12{,}000 \text{ DLHs}} = \$50.00 \text{ per DLH}$$

The unit product costs are computed as follows:

	Flexible	*Rigid*
Direct materials	$110.00	$ 80.00
Direct labor	30.00	15.00
Manufacturing overhead:		
$50.00 per DLH × 2.0 DLHs	100.00	
$50.00 per DLH × 1.0 DLHs		50.00
Unit product cost	$240.00	$145.00

2. An intern suggested that the company use activity-based costing to cost its products. A team was formed to investigate this idea. It came back with the recommendation that four activity cost pools be used. These cost pools and their associated activities are listed as follows:

Activity Cost Pool	*Estimated Overhead Cost*	*Activity* *Flexible*	*Rigid*
Purchase orders	$20,000	100	300
Rework requests	$10,000	60	140
Product testing	$210,000	900	1,200
Machine related	$360,000	1,500	2,500
	$600,000		

Compute the activity rate for each of the activity cost pools.

AC202 Quiz 6 **Name**
Student ID#:

Activity Cost Pool	*(a) Estimated Overhead Cost*	*(b) Expected Activity*	*(a) ÷ (b) Activity Rate*
Purchase orders.....	$20,000	400 orders	$50.00 per order
Rework requests	$10,000	200 requests	$50.00 per request
Product testing	$210,000	2,100 tests	$100.00 per test
Machine related.....	$360,000	4,000 MHs	$90.00 per MH

3. Assume that actual activity is as expected for the year. Using activity-based costing, do the following:

a. Determine the total amount of overhead that would be applied to each model for the year

	Flexible		*Rigid*	
	Expected Activity	*Amount*	*Expected Activity*	*Amount*
Purchase orders	100	$ 5,000	300	$ 15,000
Rework requests	60	3,000	140	7,000
Product testing	900	90,000	1,200	120,000
Machine related.....	1,500	135,000	2,500	225,000
Total overhead cost assigned (a)		$233,000		$367,000
Number of units produced (b).....		1,000		10,000
Overhead cost per unit (a) ÷ (b)		$233.00		$36.70

b. Compute the unit product cost for one unit of each model.

	Flexible	*Rigid*
Direct materials	$110.00	$ 80.00
Direct labor	30.00	15.00
Manufacturing overhead.....	233.00	36.70
Unit product cost	$373.00	$131.70

4. Can you identify a possible explanation for the company's declining profits? If so, what is it?

Unit product costs are distorted as a result of using direct labor-hours as the base for applying overhead costs to products. Although the flexible model requires twice as much labor as the rigid model, it still is not being assigned enough overhead cost

according to the activity-based costing system.

According to the activity-based costing system, the flexible model is more expensive to manufacture than the company thought. Note that the flexible model accounts for 37.5% of the machine-hours worked, although it represents a small part of the company's total output. Also, it consumes a disproportionately large amount of the other activities.

When activity-based costing is used in place of direct labor-hours as the basis for assigning overhead cost to products, the unit product cost of the flexible model jumps up from $240.00 to $373.00. If the $240.00 figure is being used as the basis for pricing, then the selling price may be too low for the flexible model. This may be the reason why profits have been declining for the last several years. It may also be the reason why sales of the flexible model have been increasing rapidly.