

Activity-Based Costing: Demonstration Problems and Practice Quiz
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Demonstration Problem 1

ABC Manufacturing, Inc. produces three gadgets (Ace, Best, and Champ) in two departments, Machining and Assembly. Each product requires one hour of direct labor for completion. The following table provides production and cost data for the year.

	Ace	Best	Champ	Total
Number of units	25,000	15,000	5,000	45,000
Machine hours	2,500	1,500	2,000	6,000
Direct materials	\$1,000,000	\$450,000	\$275,000	\$1,725,000
Direct labor	375,000	225,000	75,000	675,000
Overhead				
Machining				900,000
Assembly				450,000
Total overhead				1,350,000
Tot costs				\$3,750,000

Required:

Use the plantwide allocation method to determine the unit cost for each product. The allocation bases to choose from are

1. Machine hours.
2. Direct labor costs.

Demonstration Problem 2
 (Continued from Demonstration Problem 1)

Considering the nature of the production processes, the cost accountant of ABC Manufacturing decided to experiment with the department-specific allocation approach and determined that the Machining Department can use machine hours as the allocation base for overhead assignment while the Assembly Department can use direct labor costs instead.

Required:

Use the department allocation method to determine the unit cost for each product.

	Ace	Best	Champ
Units produced	25,000	15,000	5,000
Machine hours per unit			
Direct materials			
Direct labor			
Applied overhead			
Machining (_____per machine hour)			
Assembly (_____of direct labor costs)			
Unit cost			

Demonstration Problem 3 (Continued from Demonstration Problems 2 and 3)

The cost accountant of ABC Manufacturing attended a workshop on activity-based costing and was impressed by the results. After consulting with the production personnel, he prepared the following information on cost drivers and the estimated volume for each driver.

<u>Activity</u>	<u>Cost driver</u>	<u>Cost driver volume</u>			<u>Total</u>
		Ace	Best	Champ	
Machining					
Setup	Number of setups	125	75	50	250
Machining	Machine hours	2,500	1,500	2,000	6,000
Assembly					
Assembly	Direct labor hours	25,000	15,000	5,000	45,000
Inspection	Number of inspections	50	25	25	100

The cost accountant also determined how much overhead costs were incurred in each of the four activities as follows:

<u>Activity</u>	<u>Overhead costs</u>
Machining	
Setup	\$150,000
Machining	750,000
Total Machining department overhead	<u>\$900,000</u>
Assembly	
Assembly	\$360,000
Inspection	90,000
Total Assembly department overhead	<u>\$450,000</u>
Total overhead costs	<u><u>\$1,350,000</u></u>

Required:

1. Determine the cost driver rate for each activity cost pool.
2. Use the activity-based costing method to determine the unit cost for each product.
3. Summarize and comment the results.

Multiple Choice

1. Death spiral
 - a. Happens when managers try to set higher prices to recover increasing reported costs.
 - b. Occurs when capacity is reduced.
 - c. May happen when the market share is gaining.
 - d. Has to do with costs other than overhead.
2. In a two-stage cost allocation system,
 - a. The first stage involves assigning overhead costs to cost pools.
 - b. The cost pools may be departments.
 - c. Each cost pool requires an allocation rate.
 - d. All of the above.
3. One of the cost pools at Toylands Store is Personnel department that provides recruiting and training for Sales and Administrative departments and has an estimated overhead of \$45,000. Sales department has 12 employees and Administrative department has 3. How much of the overhead cost of the Personnel department should be allocated to the Sales department?
 - a. \$9,000.
 - b. \$22,000.
 - c. \$36,000.
 - d. \$38,000.

The following information is for questions 4 – 7.

The accountant of Toylands Manufacturing collected the following information:

<u>Activity</u>	<u>Overhead costs</u>	<u>Cost driver</u>	Product X1	Product X2
Machining Dept.				
Setup	\$200,000	Number of setups	200	50
Machining	700,000	Machine hours	20,000	15,000
Packaging Dept.				
Assembly	300,000	Direct labor hours	40,000	60,000
Inspection	180,000	Number of inspections	120	60

4. If Toylands Manufacturing uses a plantwide rate based on direct labor hours to allocate overhead costs, how much is product X1's share of overhead?
 - a. \$324,000.
 - b. \$416,000.
 - c. \$638,000.
 - d. \$552,000.
5. If the department allocation method is used, what is the overhead rate for the Machining department with machine hours as the allocation base?
 - a. \$39.43 per machine hour.
 - b. \$13.71 per machine hour.
 - c. \$20 per machine hour.
 - d. \$25.71 per machine hour.

6. When activity-based costing is used, what is product X2's share of the Packaging department overhead costs?
- \$270,000.
 - \$240,000.
 - \$580,000.
 - \$380,000.
7. When activity-based costing is used, how much of the overhead cost is allocated to product X1?
- \$580,000.
 - \$800,000.
 - \$950,000.
 - \$670,000.
8. Which of the following is true of activity-based costing relative to traditional costing?
- It requires less detailed cost measures.
 - Accounting department alone can handle all the work.
 - It needs more cost pools.
 - It is less costly to implement.
9. Activity-based costing can be beneficial to
- Banks.
 - Nonprofit organizations.
 - Law firms
 - All of the above.
10. Low-volume products, relative to high-volume ones,
- Entail less complexity during production.
 - Often require more machine setups.
 - Will not disrupt the production flow of high-volume items.
 - Are usually overcosted.
11. What are the steps required for activity-based costing in administration?
- Identify activities that consume resources.
 - Identify cost drivers associated with activities.
 - Compute activity rate per cost driver.
 - All of the above.
12. Which of the following statements is incorrect?
- Nowadays, labor is still a major product cost in many companies, especially service organizations.
 - When the labor component drops, it is prudent to allocate overhead based on direct labor.
 - When the labor component drops, the overhead rate based on direct labor tends to increase substantially.
 - When all resources are used proportionally, allocation of overhead based on machine hours is acceptable.