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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Jacobson Electronics manufactures two large-screen television models: the Royale which sells for $1,600, and a new model, the Majestic, which sells for $1,300. The production cost computed per unit under traditional costing for each model in 2008 was as follows.   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif | |  | | --- | | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif | | |  | | --- | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | | **Traditional Costing** | **Royale** | **Majestic** | | --- | --- | --- | | Direct materials | $  700 | $420 | | Direct labor ($20 per hour) | 120 | 100 | | Manufacturing overhead ($38 per DLH) | 228 | 190 | | Total per unit cost | $1,048 | $710 | | | |  | | | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif | | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |   In 2008, Jacobson manufactured 25,000 units of the Royale and 10,000 units of the Majestic. The overhead rate of $38 per direct labor hour was determined by dividing total expected manufacturing overhead of $7,600,000 by the total direct labor hours (200,000) for the two models.  Under traditional costing, the gross profit on the models was: Royale $552 or ($1,600 - $1,048), and Majestic $590 or ($1,300 - $710). Because of this difference, management is considering phasing out the Royale model and increasing the production of the Majestic model.  Before finalizing its decision, management asks Jacobson's controller to prepare an analysis using activity-based costing (ABC). The controller accumulates the following information about overhead for the year ended December 31, 2008.   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif | |  | | --- | | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif | | |  | | --- | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | | **Activities** | **Cost Drivers** | **Estimated Overhead** | **Expected Use of Cost Drivers** | **Activity-Based Overhead Rate** | | --- | --- | --- | --- | --- | | Purchasing | Number of orders | $1,200,000 | 40,000 | $30/order | | Machine setups | Number of setups | 900,000 | 18,000 | 50/setup | | Machining | Machine hours | 4,800,000 | 120,000 | 40/hour | | Quality control | Number of inspections | 700,000 | 28,000 | 25/inspection | | | |  | | | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif | | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |   The cost drivers used for each product were:   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif | |  | | --- | | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif | | |  | | --- | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | | **Cost Drivers** | **Royale** | **Majestic** | **Total** | | --- | --- | --- | --- | | Purchase orders | 15,000 | 25,000 | 40,000 | | Machine setups | 5,000 | 13,000 | 18,000 | | Machine hours | 75,000 | 45,000 | 120,000 | | Inspections | 9,000 | 19,000 | 28,000 | | | |  | | | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif | | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |   **Hint:**  *Assign overhead to products using ABC and evaluate decision.* |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Instructions**   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **(a)** | Assign the total 2008 manufacturing overhead costs to the two products using activity-based costing (ABC).   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | |  | | --- | | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |  |  | | --- | | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif | | |  | | --- | |  | |  |  | | --- | | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif | | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif | | | | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif | | | **(b)** | What was the cost per unit and gross profit of each model using ABC costing?   |  |  |  |  |  | | --- | --- | --- | --- | --- | | |  | | --- | | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |  |  | | --- | | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif | | |  | | --- | |  | | | | | |