|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|

|  |
| --- |
| **The Business Situation** |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |

Mr. Burns, president of Greetings Inc., created the Wall Décor unit of Greetings three years ago to increase the company's revenue and profits. Unfortunately, even though Wall Décor's revenues have grown quickly, Greetings appears to be losing money on Wall Décor. Mr. Burns has hired you to provide consulting services to Wall Décor's management. Your assignment is to make Wall Décor a profitable business unit.Your first step is to talk with the Wall Décor work force. From your conversations with store managers you learn that the individual Greetings stores are very happy with the Wall Décor arrangement. The stores are generating additional sales revenue from the sale of unframed and framed prints. They are especially enthusiastic about this revenue source because the online nature of the product enables them to generate revenue without the additional cost of carrying inventory. Wall Décor sells unframed and framed prints to each store at product cost plus 20%. A 20% mark-up on products is a standard policy of all Greetings intercompany transactions. Each store is allowed to add an additional mark-up to the unframed and framed print items according to market pressures. That is, the selling price charged by each store for unframed and framed prints is determined by each store manager. This policy ensures competitive pricing in the respective store locations, an important business issue because of the intense mall competition.While the store managers are generally happy with the Wall Décor products, they have noted a significant difference in the sales performance of the unframed prints and the framed prints. They find it difficult to sell unframed prints at a competitive price. The price competition in the malls is very intense. On average, stores find that the profits on unframed prints are very low because the cost for unframed prints charged by Wall Décor to the Greetings stores is only slightly below what competing stores charge their customers for unframed prints. As a result, the profit margin on unframed prints is very low, and the overall profit earned is small, even with the large volume of prints sold. In contrast, stores make a very good profit on framed prints and still beat the nearest competitor's price by about 15%. That is, the mall competitors cannot meet at a competitive price the quality of framed prints provided by the Greetings stores. As a result, store managers advertise the lowest prices in town for high-quality framed prints. One store manager referred to Wall Décor's computer on the counter as a “cash machine” for framed prints and a “lemonade stand” for unframed prints.In a conversation with the production manager you learned that she believes that the relative profitability of framed and unframed prints is distorted because of improper product costing. She feels that the costs provided by the company's traditional job-order costing system are inaccurate. From the very beginning, she has carefully managed production and distribution costs. She explains, “Wall Décor is essentially giving away expensive framed prints, and it appears that it is charging the stores too much for unframed prints.” In her office she shows you her own product costing system, which supports her point of view.Your tour of the information technology (IT) department provided additional insight as to why Wall Décor is having financial problems. You discovered that to keep the website running requires separate computer servers and several information technology professionals. Two separate activities are occurring in the technology area. First, purchasing professionals and IT professionals spend many hours managing thousands of prints and frame and matting materials. Their tasks include selecting the prints and the types of framing material to sell. They also must upload, manage, and download prints and framing material onto and off of the website. The IT staff tells you much of their time is spent with framing and matting material. Only a highly skilled IT professional can properly scan a print and load it up to the site so that it graphically represents what the print will look like when properly matted and framed.In addition, you discover that a different team of IT professionals is dedicated to optimizing the operating performance of the website. These costs are classified as manufacturing overhead because a substantial amount of work is required to keep the site integrated with purchasing and production and to safeguard Wall Décor's assets online. Most time-consuming is the effort to develop and maintain the site so that customers can view the prints as they would appear either unframed or framed and matted.A discussion with the IT professionals suggests that the time spent developing and maintaining the site for the unframed prints is considerably less than that required for the framed prints and in particular for the framed and matted prints. Developing and maintaining a site that can display the unframed prints is relatively straightforward. It becomes more complicated when the site must allow the customer to view every possible combination of print with every type of steel frame, and immensely more complicated when one considers all of the possible wood frames and different matting colors. Obviously, a very substantial portion of the IT professionals' time and resources is required to present the over 1,000 different framing and matting options.Based on your preliminary findings, you have decided that the company's ability to measure and evaluate the profitability of individual products would be improved if the company employed an activity-based costing (ABC) system. As a first step in this effort, you compiled a list of costs, activities, and values. Your work consisted of taking the original manufacturing overhead cost ($375,200, provided in Case 1) and allocating the costs to activities. You identified four activities: picking prints; inventory selection and management (includes general management and overhead); website optimization; and framing and matting cost (includes equipment, insurance, rent, and supervisor's salary).The first activity is picking prints. The estimated overhead related to this activity is $30,600. The cost driver for this activity is the number of prints. It is expected that the total number of prints will be 102,000. This is the sum of 80,000 unframed, 15,000 steel-framed, and 7,000 wood-framed.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 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/weygandt7262/weygandt7262b04/image_n/nt0003-nn.jpg |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |

 |

 |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |
|

|  |  |  |
| --- | --- | --- |
| Figure zoom   | **Illustration CA 2-1** | Information for activity 1 |

 |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |

 | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |

The second activity is inventory selection and management. The estimated overhead related to this activity is $91,700. The cost driver for this activity is the number of components per print item. An unframed print has one component, a steel-framed print has two components (the print and the frame), and a wood-framed print has three components (the print, the mat, and the frame). The total number of components is expected to be 131,000.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 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/weygandt7262/weygandt7262b04/image_n/nt0004-nn.jpg |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |

 |

 |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |
|

|  |  |  |
| --- | --- | --- |
| Figure zoom   | **Illustration CA 2-2** | Information for activity 2 |

 |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |

 | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |

The third activity is website optimization. The total overhead cost related to website optimization is expected to be $129,000. It was difficult to identify a cost driver that directly related website optimization to the products. In order to reflect the fact that the majority of the time spent on this activity related to framed prints, you first split the cost of website optimization between unframed prints and framed prints. Based on your discussion with the IT professionals, you determined that they spend roughly one-fifth of their time developing and maintaining the site for unframed prints, and the other four-fifths of their time on framed prints, even though the number of framed prints sold is substantially less than the number of unframed prints. As a consequence, you allocated $25,800 of the overhead costs related to website optimization to unframed prints and $103,200 to framed prints. You contemplated having three categories (unframed, steel-framed, and wood-framed with matting), but chose not to add this additional refinement.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 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/weygandt7262/weygandt7262b04/image_n/nt0005-nn.jpg |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |

 |

 |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |
|

|  |  |  |
| --- | --- | --- |
| Figure zoom   | **Illustration CA 2-3** | Information for activity 3 |

 |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |

 | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |

Once the $129,000 of the third activity was allocated across the two broad product categories, the number of prints at *operating capacity* was used as the cost driver. Note that operating capacity was used instead of expected units sold. The overhead costs related to website optimization are relatively fixed because the employees are salaried. If a fixed cost is allocated using a value that varies from period to period (like expected sales), then the cost per unit will vary from period to period. When allocating fixed costs it is better to use a base that does not vary as much, such as operating capacity. The advantage of using operating capacity as the base is that it keeps the fixed costs per unit stable over time.The final activity is framing and matting. The expected overhead costs related to framing and matting are $123,900. None of this overhead cost should be allocated to unframed prints. The costs related to framing and matting are relatively fixed because the costs relate to equipment and other costs that do not vary with sales volume. As a consequence, like website optimization, you chose to base the cost driver on levels at operating *capacity*, rather than at the expected sales level. The cost driver is the number of components. Steel-framed prints have two components (the print and frame), and wood-framed prints have three components (the print, mat, and frame). The total components at operating capacity would be steel frame 32,000 or (16,000 × 2) and wood frame 27,000 or (9,000 × 3,000).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 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/weygandt7262/weygandt7262b04/image_n/nt0006-nn.jpg |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |

 |

 |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |
|

|  |  |  |
| --- | --- | --- |
| Figure zoom   | **Illustration CA 2-4** | Information for activity 4 |

 |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |

 | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |

To summarize, the overhead costs and cost drivers used for each product are expected to be:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 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/weygandt7262/weygandt7262b04/image_n/nt0007-nn.jpg |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |

 |

 |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |
|

|  |  |  |
| --- | --- | --- |
| Figure zoom   | **Illustration CA 2-5** | Summary of overhead costs and cost drivers |

 |
| 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 |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/opener/left_btm_1.gif | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif | http://edugen.wiley.com/edugen/courses/crs1865/common/art/opener/right_btm_1.gif |

 |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |

|  |  |
| --- | --- |
|  | **Exercises** |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|

|  |
| --- |
| **Instructions*****Answer the following questions.*** |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |

|  |  |
| --- | --- |
| **1** | Identify two reasons why an activity-based costing system may be appropriate for Wall Décor. |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |

|  |  |
| --- | --- |
| **2** | Compute the activity-based overhead rates for each of the four activities. |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **3** | Compute the product cost for the following three items using ABC. (Review Case 1 for additional information that you will need to answer this question.)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |

|  |  |
| --- | --- |
| **(a)** | Lance Armstrong unframed print (base cost of print $12) |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |
| **(b)** | John Elway print in steel frame, no mat (base cost of print $16) |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |
| **(c)** | Lambeau Field print in wood frame with mat (base cost of print $20) |
| 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 |

|  |  |
| --- | --- |
| **4** | In Case 1 for Greetings, the overhead allocations using a traditional volume-based approach were $3.36 for Lance Armstrong, $4.48 for John Elway, and $5.60 for Lambeau Field. The total product costs from Case 1 were Lance Armstrong $17.36, John Elway $33.48, and Lambeau Field $48.10. The overhead allocation rate for unframed prints, such as the unframed Lance Armstrong print in question 3, decreased under ABC compared to the amount of overhead that was allocated under the traditional approach in Case 1. Why is this the case? What are the potential implications for the company? |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |

|  |  |
| --- | --- |
| **5** | Explain why the overhead cost related to website optimization was first divided into two categories (unframed prints and framed prints) and then allocated based on number of prints. |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |

|  |  |
| --- | --- |
| **6** | When allocating the cost of website optimization, the decision was made to initially allocate the cost across two categories (unframed prints and framed prints) rather than three categories (unframed prints, steel-framed prints, and wood-framed prints with matting). Discuss the pros and cons of splitting the cost between two categories rather than three. |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |

|  |  |
| --- | --- |
| **7** | Discuss the implications of using operating *capacity* as the cost driver rather than the expected units sold when allocating fixed overhead costs. |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif | http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **8** |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |

|  |  |
| --- | --- |
| **(a)** | Allocate the overhead to the three product categories (unframed prints, steel-framed prints, and wood-framed prints with matting), assuming that the estimate of the expected units sold is correct and the actual amount of overhead incurred equaled the estimated amount of $375,200. |
| http://edugen.wiley.com/edugen/courses/crs1865/common/art/pixel.gif |
| **(b)** | Calculate the total amount of overhead allocated. Explain why the total overhead of $375,200 was not allocated, even though the estimate of sales was correct. What are the implications of this for management? |
| 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 |

 |