**Calculate Car Manufacturing Plant Problem**

* Calculate the overhead allocation rate (i.e. burden rate) for each of the model years 1988 through 1990.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 1987 | 1988 | 1989 | 1990 |
| **Sales** |  |  |  |  |
| Fuel Tanks | 70,278 | 75,196 | 79,816 | 83,535 |
| Manifolds | 79,459 | 84,776 | 89,323 | 93,120 |
| Doors | 41,845 | 45,174 | 47,199 | 49,887 |
| Muffler/Exhausts | 62,986 | 66,266 | 0 | 0 |
| Oil Pans | 75,586 | 79,658 | 0 | 0 |
|  **Total** | **330,154** | **351,071** | **216,338** | **226,542** |
|  |  |  |  |  |
| **Direct Material** |  |  |  |  |
| Fuel Tanks | 15,125 | 15,756 | 16,312 | 16,996 |
| Manifolds | 31,696 | 33,016 | 34,392 | 35,725 |
| Doors | 14,886 | 15,506 | 16,252 | 16,825 |
| Muffler/Exhausts | 28,440 | 29,525 | 0 | 0 |
| Oil Pans | 32,218 | 33,560 | 0 | 0 |
|  **Total** | **122,365** | **127,363** | **66,956** | **14,102** |
|  |  |  |  |  |
| **Direct Labor** |  |  |  |  |
| Fuel Tanks | 4,169 | 4,238 | 4,415 | 4,599 |
| Manifolds | 5,886 | 6,027 | 6,278 | 6,540 |
| Doors | 2,621 | 2,731 | 2,844 | 2,963 |
| Muffler/Exhausts | 5,635 | 5,766 | 0 | 0 |
| Oil Pans | 6,371 | 6,532 | 0 | 0 |
|  **Total** | **24,682** | **25,294** | **13,537** | **14,102** |
|  |  |  |  |  |
| **Overhead by Account Number** |  |  |  |  |
| 1000 | 7,713 | 7,806 | 5,572 | 5,679 |
| 1500 | 6,743 | 6,824 | 5,883 | 5,928 |
| 2000 | 3,642 | 3,794 | 2,031 | 2,115 |
| 3000 | 2,428 | 2,529 | 1,354 | 1,410 |
| 4000 | 8,817 | 8,888 | 7360 | 7,410 |
| 5000 | 24,181 | 24,460 | 20,063 | 20,274 |
| 8000 | 5,964 | 5,946 | 3,744 | 3,744 |
| 9000 | 6,708 | 6,771 | 5,948 | 5,987 |
| 11000 | 5,089 | 5,011 | 3,150 | 3,030 |
| 12000 | 26,936 | 28,077 | 15,027 | 15,683 |
| 14000 | 9,733 | 9784 | 8,025 | 8,110 |
|  **Total** | 107,954 | 109,890 | 78,157 | 79,393 |
|  **Factory Profit** | 75,153 | 88,524 | 57,688 | 63,501 |

* Consider two products in the same product line. Below is their budgeted selling price and costs.

|  |  |  |
| --- | --- | --- |
|  | **Product 1** | **Product 2** |
| Expected selling price | $ 62 | $54 |
| Direct material cost | 16 | 27 |
| Direct Labor cost | 6 | 3 |

Calculate the expected gross margin as a % of selling price on each product based on the 1988 and 1990 model year budgets, assuming selling price and material and labor cost do not change from standard.