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| Portland Company's Ironton Plant produces precast ingots for industrial use. Carlos Santiago, who was recently appointed general manager of the Ironton Plant, has just been handed the plant’s contribution format income statement for October. The statement is shown below: |

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| --- | --- | --- | --- | --- |
|  | Budgeted | | Actual | |
| Sales (3,000 ingots) | $ | 250,000 | $ | 250,000 |
|  |  |  |  |  |
| Variable expenses: |  |  |  |  |
| Variable cost of goods sold\* |  | 53,430 |  | 67,000 |
| Variable selling expenses |  | 26,000 |  | 26,000 |
|  |  |  |  |  |
| Total variable expenses |  | 79,430 |  | 93,000 |
|  |  |  |  |  |
| Contribution margin |  | 170,570 |  | 157,000 |
|  |  |  |  |  |
| Fixed expenses: |  |  |  |  |
| Manufacturing overhead |  | 67,000 |  | 67,000 |
| Selling and administrative |  | 92,000 |  | 92,000 |
|  |  |  |  |  |
| Total fixed expenses |  | 159,000 |  | 159,000 |
|  |  |  |  |  |
| Net operating income (loss) | $ | 11,570 | $ | (2,000) |
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| \*Contains direct materials, direct labor, and variable manufacturing overhead. |

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| Mr. Santiago was shocked to see the loss for the month, particularly because sales were exactly as budgeted. He stated, "I sure hope the plant has a standard cost system in operation. If it doesn't, I won't have the slightest idea of where to start looking for the problem." |

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| The plant does use a standard cost system, with the following standard variable cost per ingot: |

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| --- | --- | --- | --- | --- | --- |
|  | Standard Quantity or Hours | Standard Price or Rate | | Standard Cost | |
| Direct materials | 4.2 pounds | $ | 2.80 per pound | $ | 11.76 |
| Direct labor | 0.5 hours | $ | 8.30 per hour |  | 4.15 |
| Variable manufacturing overhead | 0.5 hours\* | $ | 3.80 per hour |  | 1.90 |
|  |  |  |  |  |  |
| Total standard variable cost |  |  |  | $ | 17.81 |
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| \*Based on machine-hours. |

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| During October the plant produced 3,000 ingots and incurred the following costs: |

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| a. | Purchased 17,600 pounds of materials at a cost of $3.25 per pound. There were no raw materials in inventory at the beginning of the month. |
| b. | Used 12,400 pounds of materials in production. (Finished goods and work in process inventories are insignificant and can be ignored.) |
| c. | Worked 2,100 direct labor-hours at a cost of $8.00 per hour. |
| d. | Incurred total variable manufacturing overhead cost of $7,560 for the month. A total of 1,800 machine-hours was recorded. |

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| It is the company’s policy to close all variances to cost of goods sold on a monthly basis. |

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| **Required:** |

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| **1.** | Compute the following variances for October: |

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| --- | --- |
| **a.** | Direct materials price and quantity variances. **(Input all amounts as positive values. Leave no cells blank - be certain to enter "0" wherever required. Indicate the effect of each variance by selecting "F" for favorable, "U" for unfavorable, and "None" for no effect (i.e., zero variance.)** |

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Materials price variance | $ |  |
| Materials quantity variance | $ |  |
|  | | |

|  |  |
| --- | --- |
| **b.** | Direct labor rate and efficiency variances. **(Input all amounts as positive values. Leave no cells blank - be certain to enter "0" wherever required. Indicate the effect of each variance by selecting "F" for favorable, "U" for unfavorable, and "None" for no effect (i.e., zero variance.)** |

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Labor rate variance | $ |  |
| Labor efficiency variance | $ |  |
|  | | |

|  |  |
| --- | --- |
| **c.** | Variable overhead rate and efficiency variances. **(Input all amounts as positive values. Do not round your intermediate calculations. Leave no cells blank - be certain to enter "0" wherever required. Indicate the effect of each variance by selecting "F" for favorable, "U" for unfavorable, and "None" for no effect (i.e., zero variance.)** |

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Variable overhead rate variance | $ |  |
| Variable overhead efficiency variance | $ |  |
|  | | |

|  |  |
| --- | --- |
| **2a.** | Summarize the variances that you computed in (1) above by showing the net overall favorable or unfavorable variance for October. **(Input the amount as a positive value. Leave no cells blank - be certain to enter "0" wherever required. Indicate the effect of variance by selecting "F" for favorable, "U" for unfavorable, and "None" for no effect (i.e., zero variance.)** |

|  |  |  |
| --- | --- | --- |
| Net variance | $ |  |

|  |  |
| --- | --- |
| **3.** | Pick out the two most significant variances that you computed in (1) above. **(You may select more than one answer. Single click the box with the question mark to produce a check mark for a correct answer and double click the box with the question mark to empty the box for a wrong answer.)** |
|  |  |
|  | |  |  | | --- | --- | |  | Materials price variance | |  | Labor efficiency variance | |  | Variable overhead efficiency variance | |  | Labor rate variance | |  | Variable overhead rate variance | |  | Materials quantity variance | |