**Accounting and Finance**

**Unit 3**

**Accounting and Finance For WA**

**Chapter 4 – Introduction to Cost Accounting**

**Test Your Knowledge**

**Question 1**

**Distinguish between a direct and indirect cost and give examples to illustrate the difference.**

A direct cost is able to be traced to a product or service with a high degree of accuracy. Directly traceable means that the cost can be physically and easily traced to the finished product. Direct materials (raw materials used in making gold rings or parts and supplies used in a panel beating business) and direct labour (wages of a mechanic in a car repair business) are the two most common direct costs for a business.

Indirect costs are not so easily traced to a product or service. These are items that are not incorporated in the product or are too insignificant to make it worth tracing the cost to the finished product. Examples include the salary of a factory manager or local government rates and taxes.

**Question 2**

**Why is the difference between direct and indirect costs important in a costing system?**

Some costs may be direct in the making of one cost object and be indirect in the making of another cost object. Therefore, the distinction between direct and indirect costs is important as it allows the determination of a cost object to be more accurate.

**Question 3**

**What factors are likely to affect the classification of a cost as direct or indirect?**

The factor that affects the classification of an item as a direct or indirect cost is whether it is traceable to the finished product. To be traceable means that the cost can be physically and easily (ie. economically and conveniently) traced to the finished product.

**Question 4**

**What is meant by cost behaviour and why is it important to understand cost behaviours in a costing system?**

Cost behaviour is how a cost changes in relation to the level of production activity. This is important as the distinction between fixed, variable and mixed costs is important to the accurate determination of the cost of a product or service. With a fixed cost the unit activity cost will change as the level of units produced increases or decreases, while with a variable cost the unit cost does not change. Fixed costs in total are constant as the level of activity increases whereas with a variable cost the total cost does increase as the level of activity increases. This cost behaviour affects the unit cost of a product or service.

**Question 5**

**Distinguish between fixed costs, variable costs and mixed costs and give examples to explain the difference.**

Fixed costs are those that do not change in total when the level of activity changes. For example, the rent of a factory building will be the same in total no matter how many units are produced. Examples are:

* Depreciation of factory machinery
* Office supervisor’s salary
* Rent of a shop
* Delivery vehicle insurance

A variable cost is one that changes in total as the level of activity changes. For example, the cost of raw materials in total will increase as the level of units produced increases. Examples are:

* Wages for casual staff to make glassware
* Raw materials used in the manufacture of a computer
* Cost of goods sold
* Commission paid to salespeople

Mixed or semi‐variable costs are those costs which contain both fixed and variable elements. For example, a telephone bill will contain the line rental cost, which is a fixed cost, and the cost of phone calls made, which is a variable cost. Examples are:

* Telephone bill
* Maintenance costs
* Electricity
* Water rates

**Question 6**

**Define each of the following and give an example of each for a manufacturing, merchandising and service business: direct materials, direct labour and overheads.**

Direct materials are those raw materials that are directly traceable to the product being made, sold or the service provided. Directs materials for a manufacturing business could include the timber used to make a table in a furniture manufacturing business. Direct materials for a merchandising business could include the dresses that will be sold by a dress shop. Direct materials for a service business could include the coal required to create electricity by an energy supplier business.

Direct labour costs are the amounts paid to the employees that are traceable to the finished product. Direct labour costs for a manufacturing business could include wages paid to bakers making bread products. Direct labour costs for a merchandising business could include the wages paid to salespeople who work in a clothing store selling different items of clothing to the public. Direct labour costs for a service business could include the wages paid to a panel beater fixing the panels on a motor vehicle.

Overheads are costs that are not direct materials or direct labour, but which are still part of the manufacturing, sales or service process. These costs are indirectly connected to the finished goods or service. Overheads for a manufacturing business could include the indirect materials costs. Overheads for a merchandising business could include the electricity needed for the lighting in a shop. Overheads for a service business could include the insurance costs of the service vans the electricians drive.

**Question 7**

**What are non-manufacturing costs?**

Costs of operating a business that are not incurred in the manufacturing process (also called period costs). These can be categorised as selling or marketing costs, distribution or transport costs, administration costs and financial costs.

**Question 8**

**Distinguish between a product cost and a period cost.**

Product costs are those to do with merchandise acquired or manufactured or a service provided, while period costs are those that are not product costs. They are shown as expenses incurred in the income statement for the period.

**Question 9**

**What is cost accounting and how is it useful to the management of a business?**

Cost accounting is the measuring, analysing, recording and reporting on the cost of a product or service. It is useful for management for the following purposes:

* control of costs – comparing actual product costs with planned costs and, if necessary, taking corrective action so that the predetermined targets are met in the future;
* planning – using past product costs to estimate future product costs;
* inventory valuation – calculating the value of products that are complete (finished goods) and products that are partially complete (work in progress) at the end of each accounting period for inclusion in the financial statements;
* the setting of selling prices – often set with reference to the cost of the product or service; and
* determining profitability – management can determine if it is worth producing or selling the product or service.

**Question 10**

**Define absorption costing.**

Absorption costing is the method whereby all fixed manufacturing costs and variable manufacturing costs are included in the product cost.

**Question 11**

**Describe a job order costing system.**

A job order costing system is used when a business creates a single unit or multiple units of a distinct product, makes a product to a customer order or provides a service to meet specific customer requirements.

Each job has its own special characteristics and may be, for example, a single product, a batch of the same product or a service provided to an individual client. In each case, the job uses its own specific resources.

**Question 12**

**What is a predetermined overhead application rate?**

The predetermined overhead rate allocates the indirect costs of production to the actual quantity of the product or service provided. The budgeted manufacturing overhead cost is divided by the budgeted allocation base. The budgeted manufacturing overhead cost is usually the cost for a year ahead. The predetermined overhead rate is then allocated to the cost of a job or batch based on the actual amount of the allocation base for that job or batch.

**Question 13**

**What is a normal costing system?**

Normal costing determines the cost of a product or service with job order costing using actual direct materials, actual direct labour and a predetermined overhead rate. These figures are applied to the actual quantity related to a job. The predetermined overhead rate allocates the indirect cost of production to the actual quantity of the product or service produced.

**Question 14**

**What is a standard costing system?**

A standard cost is a predetermined cost and based on some preconceived benchmark of what is considered appropriate to the making of a product. This may apply to:

* the quantity of input (how much material should be used in the making of a dress, for instance); or
* the price of the input material to be used (the price of the dress, for instance)

The benchmark of the quantity of input is called the standard input and the benchmark price is called the standard price. The total standard cost is the standard price multiplied by the standard quantity. Therefore, the direct materials, direct labour and manufacturing overhead are not actual costs but rather estimates based on a standard cost.

**Question 15**

**Explain what is meant by variance analysis.**

Variance analysis when using standard costs, is the comparison of the actual results compared to the standard amount or value represented in the flexible budget. The flexible budget is the standard quantity, or hours allowed, for actual output multiplied by the standard price or rate.

**Question 16**

**Define the concept of the mark-up.**

The mark-up is the amount added to the unit cost to determine the selling price and will include a profit margin. The mark-up is usually a percentage of the unit cost of the product.

**Test Your Understanding**

**Question 4.1**

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| **Item** | **Manufacturing or Non-Manufacturing Cost** | **Director Indirect Cost** | **Fixed, Variable or Mixed Cost** | **Product or Period Cost** |
| **Clothing Factory Equipment Maintenance** | Non-Manufacturing | Indirect | Mixed | Product |
| **Wages of Vehicle Factory Assembly Workers** | Manufacturing | Direct | Variable | Product |
| **Salaries of Marketing Staff** | Non-Manufacturing | Indirect | Fixed | Period |
| **Depreciation of Office Equipment in a Law Practice** | Non-Manufacturing | Indirect | Fixed | Period |
| **Surfboard Factory Supervisor’s Salary** | Manufacturing | Indirect | Fixed | Product |
| **Glue Used in the Production of Chairs** | Manufacturing | Indirect | Variable | Product |
| **Linen Cloth Used in the Upholstery of a Chair** | Manufacturing | Direct | Variable | Product |
| **Stationery Used in the Administration Office of an Architect** | Non-Manufacturing | Indirect | Fixed | Period |
| **Salary of the Business Accountant for a Chain of Jewellery Stores** | Non-Manufacturing | Indirect | Fixed | Period |
| **Wages of Factory Store Personnel** | Manufacturing | Indirect | Variable | Product |
| **Depreciation of Factory Machinery** | Manufacturing | Indirect | Fixed | Product |

**Question 4.3**

**Requirement A**

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| **Predetermined Overhead Rate** | Budgeted Manufacturing Overhead Cost |
| Budgeted Allocation Base |

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| **Predetermined Overhead Rate** | $90 000 |
| 4 350 |

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| **Predetermined Overhead Rate** | **$20.69** |

**Requirement B**

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| **Job Number 56** |
| **Direct Materials** | $11 000 |
| **Direct Labour** ($50 Per Hour x 600 Hours) | $30 000 |
| **Manufacturing Overhead** ($20.69 x 600 Hours) | $12 414 |
| **Total Cost** | **$53 414** |

**Question 4.5**

**Requirement A**

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| **Budgeted Manufacturing Overhead Cost** |
| Indirect Materials | $83 000 |
| Indirect Labour | $67 000 |
| Other Overheads | $130 000 |
|  | **$280 000** |

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| **Predetermined Overhead Rate** | Budgeted Manufacturing Overhead Cost |
| Budgeted Allocation Base |

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| **Predetermined Overhead Rate** | $280 000 |
| 2 150 |

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| **Predetermined Overhead Rate** | **$130.24** |

**Requirement B**

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| **Batch Number 130** |
| **Direct Materials** | $20 000 |
| **Direct Labour** | $3 600 |
| **Manufacturing Overhead** ($130.24 x 24 Hours) | $3 126 |
| **Total Cost** | **$26 726** |

**Requirement C**

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| **Cost of a Bottle of Chocolate Milk** |
| **Cost of a Batch of Chocolate Milk** | **$26 726** |
| **How Many Bottles of Chocolate Milk in a Batch** | **10 000** |
| **Cost of a Bottle of Chocolate Milk** | **$2.68** |

**Question 4.8**

**Requirement A**

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| **Mixing Department** |
| **Predetermined Overhead Rate** | Budgeted Manufacturing Overhead Cost |
| Budgeted Allocation Base |

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| **Mixing Department** |
| **Predetermined Overhead Rate** | $35 000 |
| 600 |

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| **Mixing Department** |
| **Predetermined Overhead Rate** | **$58.33** |

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| **Cooking Department** |
| **Predetermined Overhead Rate** | Budgeted Manufacturing Overhead Cost |
| Budgeted Allocation Base |

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| **Cooking Department** |
| **Predetermined Overhead Rate** | $56 000 |
| 1 000 |

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| **Cooking Department** |
| **Predetermined Overhead Rate** | **$56.00** |

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| **Packaging Department** |
| **Predetermined Overhead Rate** | Budgeted Manufacturing Overhead Cost |
| Budgeted Allocation Base |

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| **Packaging Department** |
| **Predetermined Overhead Rate** | $25 000 |
| 6 300 |

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| **Packaging Department** |
| **Predetermined Overhead Rate** | **$3.97** |

**Requirement B**

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| **Cost of a Batch of Jelly Beans** |
| **Direct Materials** | $2 735 + $500 = $3 235 |
| **Direct Labour** | 12 x $45 = $540 + 25 x $55 = $1 375 + 42 x $40 = $1 680 = $3 595 |
| **Manufacturing Overhead** | 10 x $58.33 = $583.30 + 23 x $56.00 = $1 288 + 42 x $3.97 = $166.74 = $2 038 |
| **Total Cost** | **$8 868** |

**Requirement C**

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| **Cost of a Packet of Jelly Beans** |
| **Cost of a Batch of Jelly Beans** | **$8 868** |
| **How Many Packets of Jelly Beans in a Batch** | **1 000** |
| **Cost of a Packet of Jelly Beans** | **$8.87** |

**Question 4.10**

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| **Total Overheads** |
| Electricity Costs Incurred | $4 500 |
| Water Costs Incurred | $1 800 |
| Cleaning Costs Incurred | $15 000 |
| Repairs and Maintenance of Equipment | $2 900 |
| Depreciation of Equipment | $12 600 |
| Indirect Materials Used | $35 600 |
| Rent Cost Incurred | $27 800 |
| Insurance Cost Incurred | $5 100 |
| Salon Manager Salary | $ 67 000 |
|  Miscellaneous Costs Incurred | $16 450 |
|  | **$188 750** |

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| **Predetermined Overhead Rate** | Budgeted Manufacturing Overhead Cost |
| Budgeted Allocation Base |

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| **Predetermined Overhead Rate** | $188 750 |
| Direct Labour Hours = 9 x 7½ x 5 x 52 = 17 550 |

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| **Predetermined Overhead Rate** | **$10.76** |

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| **Cost of a Ladies Wash and Blow-Wave** |
| **Direct Materials** | $3.50 |
| **Direct Labour** | $26.00 x 0.5 (30 Minutes) = $13.00 |
| **Manufacturing Overhead** | $10.76 x 0.5 (30 Minutes) = $5.38 |
| **Total Cost** | **$21.88** |

**Question 4.13**

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| **Standard Cost of Making a Batch of 5000 Surf Shirts** |
| **Direct Materials** |
| Cotton (2 Metres Per Shirt) x $7.00 Per Metre | **$14.00 Per Shirt** |
| Buttons (3 Buttons Per Shirt) x 0.50 Per Button | **$1.50 Per Shirt** |
| **Direct Labour** |
| 30 Minutes (0.5) Per Shirt x $30.00 Per Hour | **$15.00 Per Shirt** |
| **Manufacturing Overheads** |
| Total Overheads | $160 000 |
| Direct Labour Hours | 18 000 Hours |
| Predetermined Overhead Rate | $160 000/18 000 = $8.89 Per Direct Labour Hour |
|  | Therefore, $8.89 x 30 Minutes (0.5) = **$4.44 Per Shirt** |
| **Total Standard Cost of Making a Shirt** |
| **Direct Materials** | $15.50 |
| **Direct Labour** | $15.00 |
| **Manufacturing Overhead** | $4.44 |
| **Total Cost** | **$34.94** |
| **Cost of a Batch of 5000 Shirts** |
| 5000 x $34.94 | **$174 700** |

**Question 4.14**

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| **Standard Cost of Making a Batch of Incense Burners** |
| **Direct Materials** |
| Clay (500 kilos @ $8.00 per kilo) | **$4 000** |
| Glaze (300 litres @ $2.00 per litre) | **$600** |
| Paint (80 litres @ $5.00 per litre) | **$400** |
| Sealant (200 litres @ $3.50 per litre) | **$700** |
| **Direct Labour** |
| 200 direct labour hours @ $30.00 per hour | **$6 000** |
| **Manufacturing Overheads** |
| Total Overheads | $79 000 |
| Direct Labour Hours | 11 520 Hours |
| Predetermined Overhead Rate | $79 000/11 520 = $6.86 per direct labour hour |
|  | Therefore, 200 direct labour hours x $6.86 per direct labour hour = **$1 372** |
| **Standard Cost of Making a Batch of 2000 Incense Burners** |
| **Direct Materials** | $5 700.00 |
| **Direct Labour** | $6 000.00 |
| **Manufacturing Overhead** | $1 372.00 |
| **Total Cost** | **$13 072.00** |
| **Cost of Making One Incense Burner** |
| $13 072/2 000 | **$6.54** |

**Question 4.17**

**Requirement A**

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| **Direct Materials Price Variance =** | (AP – SP) x AQP |
| ie. (Actual Price of Input – Standard Price of Input) x Actual Quantity of Input Purchased |

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| **Direct Materials Price Variance =** | (11.00 – 10.00) x 950 |

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| **Direct Materials Price Variance =** | **$950 U** |

**Requirement B**

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| **Direct Materials Quantity (Usage) Variance =** | (AQI - SQA) x SP |
| ie. (Actual Quantity of Input Issued – Standard Quantity of Input Allowed for Actual Output) x Standard Price of Input |
| **Where** SQA = SQ x AO |
| ie. Standard Quantity Per Unit x Actual Output in Units Produced |

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| **Direct Materials Quantity (Usage) Variance =** | (950 – 1000 (1 x 1000)) x 10.00 |

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| **Direct Materials Quantity (Usage) Variance =** | **($500) F** |

**Requirement C**

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| **Direct Labour Rate Variance =** | (AR - SR) x ADLH |
| ie. (Actual Rate Per Direct Labour Hour Worked – Standard Rate Per Direct Labour Hour Worked) x Actual Direct Labour Hours Worked |

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| **Direct Labour Rate Variance =** | (18.30 – 18.00) x 550 |

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| **Direct Labour Rate Variance =** | **$165 U** |

**Requirement D**

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| **Direct Labour Efficiency Variance =** | (ADLH - SDLHA) x SR |
| ie. (Actual Direct Labour Hours Worked – Standard Rate Per Direct Labour Hours Allowed For Actual Output) x Standard Rate Per Direct Labour Hour |
| **Where** SDLHA = SDLH x AO |
| ie. Standard Direct Labour Hours Allowed Per Unit x Actual Output in Units Produced |

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| **Direct Labour Efficiency Variance =** | (550 – 500 (0.5 x 1000)) x 18.00 |

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| **Direct Labour Efficiency Variance =** | **$900 U** |

**Question 4.21**

**Requirement A**

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| **Direct Materials Price Variance =** | (AP – SP) x AQP |
| ie. (Actual Price of Input – Standard Price of Input) x Actual Quantity of Input Purchased |

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| **Direct Materials Price Variance =** | (0.33 – 0.30) x 99 200 (31 Square Centimetres x 3200 (Actual Production) |

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| **Direct Materials Price Variance =** | **$2 976 U** |

**Requirement B**

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| **Direct Materials Quantity (Usage) Variance =** | (AQI - SQA) x SP |
| ie. (Actual Quantity of Input Issued – Standard Quantity of Input Allowed for Actual Output) x Standard Price of Input |
| **Where** SQA = SQ x AO |
| ie. Standard Quantity Per Unit x Actual Output in Units Produced |

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| **Direct Materials Quantity (Usage) Variance =** | (31 – 30) x 3200) x 0.30 |

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| **Direct Materials Quantity (Usage) Variance =** | **$960 U** |

**Requirement C**

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| **Direct Manufacturing Labour Rate Variance =** | (AR - SR) x ADLH |
| ie. (Actual Rate Per Direct Labour Hour Worked – Standard Rate Per Direct Labour Hour Worked) x Actual Direct Labour Hours Worked |

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| **Direct Manufacturing Labour Rate Variance =** | (24.00 – 22.00) x 800 (3200 x 0.25) |

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| **Direct Manufacturing Labour Rate Variance =** | **$1600 U** |

**Requirement D**

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| **Direct Manufacturing Labour Efficiency Variance =** | (ADLH - SDLHA) x SR |
| ie. (Actual Direct Labour Hours Worked – Standard Rate Per Direct Labour Hours Allowed For Actual Output) x Standard Rate Per Direct Labour Hour |
| **Where** SDLHA = SDLH x AO |
| ie. Standard Direct Labour Hours Allowed Per Unit x Actual Output in Units Produced |

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| **Direct Manufacturing Labour Efficiency Variance =** | (800 (3200 x 0.25) – 853.33 (3200 x 0.266666)) x 22.00 |

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| **Direct Manufacturing Labour Efficiency Variance =** | **($1173.26) F** |

**Question 4.22**

**Requirement A**

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| **Predetermined Overhead Rate****(Total Overheads/Machine Hours)** | **Total Overheads** | $109 750 |
| **Machine Hours** | 51 000 |
| **$109 750/51 000** | **$2.15** |

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| **Standard Cost of a Batch of Foam Mats** | **Direct Materials** | 7 500 Square Metres (3 x 2 500) x $200 = **$1 500 000** |
| **Direct Labour** | 2 x $21.00 x 2 500 = **$105 000** |
| **Overheads** | 2 x $2.15 x 2 500 = **$10 750** |
| **Standard Cost of a Batch of Foam Mats** | **$1 615 750** |
| **Cost of Making One Foam Mat** | $1 615 750/2 500 = **$646.30** |

**Requirement B**

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| **Predetermined Fixed Overhead Rate** | **Fixed Overheads** | $63 750 |
| **Machine Hours** | 51 000 |
| **$63 750/51 000** | **$1.25** |

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| **Predetermined Variable Overhead Rate** | **Variable Overheads** | $46 000 |
| **Machine Hours** | 51 000 |
| **$46 000/51 000** | **$0.90** |

**Requirement C Part 1**

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| **Direct Materials Price Variance =** | (AP – SP) x AQP |
| ie. (Actual Price of Input – Standard Price of Input) x Actual Quantity of Input Purchased |

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| **Direct Materials Price Variance =** | (210 – 200) x 7 200 |

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| **Direct Materials Price Variance =** | **$72 000 U** |

**Requirement C Part 2**

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| **Direct Materials Quantity (Usage) Variance =** | (AQI - SQA) x SP |
| ie. (Actual Quantity of Input Issued – Standard Quantity of Input Allowed for Actual Output) x Standard Price of Input |
| **Where** SQA = SQ x AO |
| ie. Standard Quantity Per Unit x Actual Output in Units Produced |

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| **Direct Materials Quantity (Usage) Variance =** | (7 200 – 6 900) x $200**(3 Square Metres x 2 300 Rugs = 6 900)** |

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| **Direct Materials Quantity (Usage) Variance =** | **$60 000 U** |

**Requirement C Part 3**

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| **Direct Manufacturing Labour Rate Variance =** | (AR - SR) x ADLH |
| ie. (Actual Rate Per Direct Labour Hour Worked – Standard Rate Per Direct Labour Hour Worked) x Actual Direct Labour Hours Worked |

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| **Direct Manufacturing Labour Rate Variance =** | (22.00 – 21.00) x 4 400 |

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| **Direct Manufacturing Labour Rate Variance =** | **$4 400 U** |

**Requirement C Part 4**

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| **Direct Manufacturing Labour Efficiency Variance =** | (ADLH - SDLHA) x SR |
| ie. (Actual Direct Labour Hours Worked – Standard Rate Per Direct Labour Hours Allowed For Actual Output) x Standard Rate Per Direct Labour Hour |
| **Where** SDLHA = SDLH x AO |
| ie. Standard Direct Labour Hours Allowed Per Unit x Actual Output in Units Produced |

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| **Direct Manufacturing Labour Efficiency Variance =** | (4 400 – 4 600) x 21.00**(2 Hours Per Rug x 2 300 Rugs)** |

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| **Direct Manufacturing Labour Efficiency Variance =** | **($4 200) F** |

**Question 4.23**

**Requirement A**

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| --- | --- |
| **Predetermined Overhead Rate** | Budgeted Manufacturing Overhead Cost |
| Budgeted Allocation Base |

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| **Predetermined Overhead Rate** | $430 000 |
| 4 570 |

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| **Predetermined Overhead Rate** | **$94.09** |

**Requirement B**

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| **Cost of One New Outback Tent** |
| **Direct Materials** | $463 000/500 = $926 Per Tent |
| **Direct Labour** | $23 560/500 = $47 Per Tent |
| **Manufacturing Overhead** | $94.09 x 160 = $15 055/500 = $30 Per Tent |
| **Total Cost** | **$1 003** |

**Requirement C**

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| **Price to be Charged for One New Outback Tent** |
| **Cost of One New Outback Tent** | $1 003 |
| **Mark-Up** | $1 003 x 1.35 |
| **Selling Price** | **$1 354** |

**Requirement D**

The factors the company would have considered in deciding on the mark-up percentage could have included:

* what the market/customers are willing to pay for the product?
* how much are their competitors selling similar products for?
* how much profit the business wishes to make?
* what are the costs of the product that need to be covered?

**Question 4.27**

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| **The Quote for Making and Erecting a Patio** |
| **Prefabrication Department** |
| **Direct Materials** | $6 000 |
| **Direct Labour** | 4 Hours at $45 Per Hour = $180 |
| **Manufacturing Overhead** | $23.00 x 10 Hours = $230 |
| **Total Cost for the Prefabrication Department** | **$6 410** |
| **Cutting Department** |
| **Direct Materials** | $300 |
| **Direct Labour** | 8 Hours at $55 Per Hour = $440 |
| **Manufacturing Overhead** | $18.00 x 8 Hours = $144 |
| **Total Cost for the Cutting Department** | **$884** |
| **On-Site Construction Department** |
| **Direct Materials** | $500 |
| **Direct Labour** | 30 Hours at $61 Per Hour = $1 830 |
| **Manufacturing Overhead** | $3.00 x 30 Hours = $90 |
| **Total Cost for the On-Site Construction Department** | **$2 420** |
| **Total Overall Cost for Making and Erecting Patio for the Customer** | **$9 714** |
| **Quote for Making and Erecting Patio for the Customer** | **$9 714 x 1.28 = $12 434** |