INTRODUCTION

Concepts in accounting are sometimes presented with numbers that are far too cumbersome, which can distract from, rather than aid the learning process. Whenever possible, numbers in an illustrative problem should be unique to a singular item and easy to manage – such that the numbers are neither distractingly large nor too small. (Later, in problems at the end of the chapter, numbers need not be quite as well developed as the first set of numbers used to illustrative the new material.) In this paper, a problem is presented which focuses on direct versus absorption costing. This problem was developed as a supplement to a textbook illustration that used the same dollar amount for several per-unit cost items, and a couple of large, unwieldy numbers for total costs and was quite confusing, even for the professor. The illustration presented in this paper was well received by the students since the purposely-designed and uniquely-assigned numbers mapped a clearer pathway through the problem.

OVERVIEW OF DIRECT VERSUS ABSORPTION COSTING

The direct method (or variable method) of costing products views only the variable costs of production as costs that should be inventoried if the product is not sold. Accordingly, all fixed costs, including fixed overhead costs, are not considered product costs, but costs of the time period under investigation and are consequently expensed in their entirety when incurred. On the other hand, even though fixed selling and administrative expenses are also expensed as incurred under the absorption method, fixed overhead is not. The absorption method views fixed overhead as a necessary cost of production and, as such, is unitized into production and expensed when the product is sold. (In other words, each unit produced must “absorb” its fair share of fixed overhead into its product cost which becomes an asset until sold.) Consequently, the difference between net income figures under the direct method versus the absorption method will be the fixed overhead per unit times the change in inventory (assuming all costs remain constant). The absorption method is the procedure required for external reporting, while the direct method is the usual choice for internal analysis for many business decisions due to its focus on cost behavior patterns (where variable production costs per unit and fixed overhead in total remain constant over all levels of production within the relevant range for the business). Accordingly, both procedures, while different, are important in the making and reporting of business decisions.
DATA FOR THE PROBLEM

The following problem is a typical direct versus absorption question. In Part I, the cost-volume-profit assumption of no change in inventory is in force. Accordingly, 10,000 units are produced and sold. In Part II, there is one change in the data: 10,000 units are produced, but only 9,000 units are sold, which results in a finished goods ending inventory of 1,000 units.

Direct-Absorption Company manufactures super widgets which it sells for $50 each. Direct-Absorption has the following data available for its first year of operations:

- **Direct Materials** = 5 pounds per unit at $1.60 per pound = $8 per unit
- **Direct Labor** = 1/2 hour per unit at $14 per hour = $7 per unit
- **Total Manufacturing Overhead** = $110,000, of which $60,000 is fixed
  = $50,000 is variable = $5 per unit
- **Total Selling Expenses** = $70,000, of which $40,000 is fixed
  = $30,000 is variable = $3 per unit
- **Total Administrative Expenses** = $30,000, of which $20,000 is fixed
  = $10,000 is variable = $1 per unit
- **Number of Units Produced** = 10,000

**Required:** Prepare income statements for the year using both the direct and absorption methods.

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**Solution:**
The first step is to create a data presentation framework that is readily usable to solve the problem. The numbers presented above can be extended and/or subdivided, as follows:

- **Direct Materials** = 5 pounds per unit at $1.60 per pound = $8 per unit
- **Direct Labor** = 1/2 hour per unit at $14 per hour = $7 per unit
- **Total Manufacturing Overhead** = $110,000, of which $60,000 is fixed
  = $50,000 is variable = $5 per unit
- **Total Selling Expenses** = $70,000, of which $40,000 is fixed
  = $30,000 is variable = $3 per unit
- **Total Administrative Expenses** = $30,000, of which $20,000 is fixed
  = $10,000 is variable = $1 per unit

Note that the numbers on the far right are each unique and not too cumbersome. Even though a variety of numbers were used at the start of the problem, by the time the data is rearranged, it has the relevant numbers of $1; $20,000; $3; $40,000; $5; $60,000; $7; and, $8. Also, 10,000 units were sold in Part I (and 9,000 will be sold in Part II). Even fixed overhead per unit is $6 (which is needed in Part II). This, of course, does not mean the problem is easy. It means that the difficulty of the problem has not been unnecessarily increased by numbers that are too identical or overly cumbersome. Therefore, students should feel comfortable focusing on the concepts of direct costing and absorption costing and how they are similar and how they differ, rather than on having the additional task of focusing on keeping numbers that are too similar or too complex straight. The corresponding income statements for direct versus absorption costing, based on the numbers above, are as follows:
Part I: **Direct Costing – 10,000 Units Produced and Sold**

Sales  
\[ 10,000 \times \$50 = \$500,000 \]

- **Variable Costs:**
  - Direct Materials  
    \[ 10,000 \times \$8 = \$80,000 \]
  - Direct Labor  
    \[ 10,000 \times \$7 = \$70,000 \]
  - Variable Overhead  
    \[ 10,000 \times \$5 = \$50,000 \]
  - Variable Selling  
    \[ 10,000 \times \$3 = \$30,000 \]
  - Variable Administrative  
    \[ 10,000 \times \$1 = \$10,000 \]

**Variable Cost of Goods Sold**  
\[ \$240,000 \]

**Contribution Margin**  
\[ \$260,000 \]

- **Fixed Costs:**
  - Fixed Overhead  
    \[ \$60,000 \]
  - Fixed Selling  
    \[ \$40,000 \]
  - Fixed Administrative  
    \[ \$20,000 \]

**Net Income**  
\[ \$140,000 \]

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Part I: **Absorption Costing – 10,000 Units Produced and Sold**

Sales  
\[ 10,000 \times \$50 = \$500,000 \]

- **Cost of Goods Sold:**
  - Direct Materials  
    \[ 10,000 \times \$8 = \$80,000 \]
  - Direct Labor  
    \[ 10,000 \times \$7 = \$70,000 \]
  - Variable Overhead  
    \[ 10,000 \times \$5 = \$50,000 \]
  - Fixed Overhead  
    \[ 10,000 \times \$6 = \$60,000 \]

**Gross Margin or Gross Profit**  
\[ \$240,000 \]

- **Selling and Administrative Expenses:**
  - Variable Selling  
    \[ 10,000 \times \$3 = \$30,000 \]
  - Fixed Selling  
    \[ \$40,000 \]
  - Variable Administrative  
    \[ 10,000 \times \$1 = \$10,000 \]
  - Fixed Administrative  
    \[ \$20,000 \]

**Net Income**  
\[ \$140,000 \]

*Note: Fixed Overhead Per Unit = $60,000 ÷ 10,000 Units = $6 Per Unit

However, since all units produced were sold, the net incomes were identical under the two methods.

(Under the direct method, $60,000 total fixed overhead cost was expensed. Under the absorption method, $6 per unit x 10,000 units = $60,000 fixed overhead was expensed and -$0- was inventoried since there were no produced, but unsold units.)
Part II: Direct Costing – 10,000 Units Produced and 9,000 Units Sold

Sales

9,000 x $50 = $450,000

-Variable Costs:

Direct Materials

9,000 x $8 = $72,000

Direct Labor

9,000 x $7 = 63,000

Variable Overhead

9,000 x $5 = 45,000

Variable Selling

9,000 x $3 = 27,000

Variable Administrative

9,000 x $1 = 9,000

Contribution Margin $234,000

-Fixed Costs:

Fixed Overhead

$60,000

Fixed Selling

40,000

Fixed Administrative

20,000

Net Income $114,000

Part II: Absorption Costing – 10,000 Units Produced and 9,000 Units Sold

Sales

9,000 x $50 = $450,000

-Cost of Goods Sold:

Direct Materials

9,000 x $8 = $72,000

Direct Labor

9,000 x $7 = 63,000

Variable Overhead

9,000 x $5 = 45,000

Fixed Overhead

9,000 x $6* = 54,000

Gross Margin or Gross Profit $216,000

-Selling and Administrative Expenses:

Variable Selling

9,000 x $3 = 27,000

Fixed Selling

40,000

Variable Administrative

9,000 x $1 = 9,000

Fixed Administrative

20,000

Net Income $120,000

*Note: Fixed Overhead Per Unit = $60,000 ÷ 10,000 Units = $6 Per Unit

The difference in Net Incomes = Fixed Overhead Per Unit x Change In Inventory = $6 per unit x 1,000 units = $6,000

**Also note that the more traditional way of calculating Cost of Goods Sold would be:

-Cost of Goods Sold:

Direct Materials

10,000 x $8 = $80,000

Direct Labor

10,000 x $7 = 70,000

Variable Overhead

10,000 x $5 = 50,000

Fixed Overhead

$60,000 ÷ 10,000 Units = $6 Per Unit

$260,000

+Beginning Inventory Work-In-Process = -0-

-Ending Inventory Work-In-Process = -0-

+Beginning Inventory Finished Goods = -0-

-Ending Inventory Finished Goods = 26,000

Cost of Goods Sold $234,000

1,000 units at $26 per unit
SUMMARY AND CONCLUSIONS

This paper illustrates the benefits of using number scenarios in problems such that the numbers are not distracting, but are unique to the point that they can be easily tracked through the problem to help illustrate the points being made. Unique, easy-to-manage numbers can also be a plus for exams – such numbers not only help students, they can also make the exams easier to grade. Accordingly, designing accounting problems that use easy-to-track, yet non-distracting numbers can enhance the learning process and prove beneficial to both students and professors.