ACG 3024 – Accounting for Non-Financial Majors

Homework Portfolio Study Guide

These are similar questions with the answers to help guide you when preparing the Homework Portfolio that you will upload to the Dropbox tab labeled Homework Portfolio.

#1 Preppy Co. makes and sells a single product. The current selling price is $35 per unit. Variable costs are $20 per unit and fixed expenses total $80,000 per month. Sales volume for July totaled 10,000 units. **Page 451-454, and page 458-461**

(a) Calculate the operating income for July. Use the Contribution Margin Format

Revenues	(10,000 units x35=350,000)	$350,000
Variable Expense	(10,000 units x20=200,000)	- 200,000
Contribution Margin		150,000
Fixed Expenses		- 80,000
Operating Income (loss)		$70,000

(b) Calculate **the break-even point in units** sold and **break-even total revenues**.

First: Calculate Contribution Margin per Unit: (Revenues per Unit – Variable Expense per Unit)

(*Although we are given the per unit information in this problem, here is how you would calculate it if it were not given.)*

Revenues per unit- $350,000/10,000 units = $35 per unit

Variable Expense per unit - $200,000/10,000 units = $20 per unit

Contribution Margin per unit = Revenues per Unit – Variable Expense per Unit

Contribution Margin per unit = $35 –$20 = **$15**

Second: Calculate **break-even points in units**: (Fixed Expenses/Contribution Margin per Unit)

(Note: you must round to whole units)

= $80,000/$15 = 5,333 units

Third: Calculate contribution margin ratio (Contribution per unit / Revenues per unit)

$15/$35 =.428 cm ratio

Finally: Calculate **break-even total revenues**: (Fixed Expenses/Contribution Margin Ratio)

$80,000/.428 = $186,916.89

#2 George's Garage incurred the following costs during May: **Page 501-502**

Raw Material	$35,000
Direct labor	100,000
Manufacturing OH	50,000
Selling Expense	34,000
Administrative Expense	21,000
Interest Expense	10,000
Finished Goods Inventory May 1	1,000
Finished Goods Inventory May 31	3,500

during the month, 5,000 units of product were manufactured and 4,000 units of product were sold. On May 1, George's carried no Raw Materials inventories.

(a.) Calculate the **cost of goods manufactured** during May and the **average cost per unit** of product manufactured.

Raw materials:

Raw Material Inventory, May 1	$0	
Purchases during May	35,000	
Raw Materials available for use	35,000	
*Less: **Raw Material** Inventory May 31	-7,000	(be careful here **do not use** finished goods information)
Cost of Raw Material used		28,000
Direct Labor cost incurred in May		100,000
Manufacturing OH applied during May		50,000
Total manufacturing Costs incurred during May		$178,000

Average Cost per Unit $178,000/5,000 units manufactured = $35.60

*Ending **Raw Material** inventory is calculated 5,000 units produced and 4,000 sold = 1,000 units is remaining in ending inventory (5,000 -4,000=1,000)

$35,000/5,000 = $7 x 1,000 units = **$7,000** (This is the value of the 1,000 units in ending inventory on May 31st.)

Problem 2 continued
(b.) Calculate the cost of goods sold during May.

Beginning **Finished Goods Inventory**, May 1	$1,000
Cost of Manufactured	178,000
Cost of goods available for sale	$179,000
Less: ending **Finished Goods Inventory**, May 31	-3,500
Cost of Goods Sold	$175,500

#3 Dominic's, Inc. had actual sales for January and February and forecasted sales for March, April, May and June as follows: **Page 543**

Actual:

January	$152,000
February	$208,000

Forecast:

March	$205,000
April	$198,000
May	$220,000
June	$205,000

Based on company experience, it is estimated that 25 percent of a month's sales are collected in the month of sale, 50 percent of the prior month's sales, and 15 percent of the second prior months sales. Calculate the estimated cash collections for March, April, and May.

	March Collections		April Collection			May Collections		
January	152,000 x 15%	$22,800						
February	208,000 x 50%	$104,000	February	208,000 x 15%	$31,200			
March	205,000 x 25%	$51,250	March	205,000 x 50%	$102,500	March	205,000 x 15%	$30,750
			April	198,000 x 25%	$49,500	April	198,000 x 50%	$99,000
						May	220,000 x 25%	$55,000
		March			April			May
Total		$178,050			$183,200			$184,750

#4 The standards (budgets) for one case of Peardrax are: **Page 575, 580, & 581**

Direct materials (Raw Material)	-based on 2,900 cases	7 lbs@ 3.60/lb
Direct labor	-based on 2,900 cases	3 hrs @ $15.50/hr
Variable Overhead	-based on 2,900 cases	2 hrs @ $5.50/hr

During the week ended June 7 the following activity took place:

Actual

1) 5,120 machine hours were worked;
2) 23,400 lbs. of raw material (direct material) were purchased for inventory at a total cost of $79,560;
3) 3,100 cases of finished product were produced;
4) 22,650 lbs. of raw material (direct material) were used;
5) 10,260 labor hours were worked at an average rate of $15.10 per hour;
6) $26,774 actual variable overhead costs were incurred and 2 hours of variable overhead hours.

Calculate each of the following:

Make sure you indicate whether the variance is favorable or unfavorable. Variances are ALWAYS stated in dollar amounts.

A) Flexible Budget

B) Price variance for raw materials purchased

C) Raw materials usage variance

D) Direct labor rate variance

E) Direct labor efficiency variance

F) Variable overhead spending variance

G) Variable overhead efficiency variance

Step 1: Calculate the Flexible Budget:

Standards (Budget)

DM – 2,900 Cases x 7 lbs = 20,300 lb x $3.60 = $73,080

DL – 2,900 Cases x 3 hrs = 8,700 hrs x $15.50 = $134,850

VOH –2,900 Cases x 2 hrs = 5,800 hrs x $5.50 = $31,900

Standards (Budget) Flexed

DM – 3,100 Cases x 7 lbs = 21,700 lb x $3.60 = $78,120

DL – 3,100 Cases x 3 hrs = 9,300 hrs x $15.50 = $144,150

VOH –3,100 Cases x 2 hrs =6,200 hrs x $5.50 = $34,100

Actual -

DM -$79,560 / 23,400 = $3.40 x 22,650 lbs = $77,010

DL -10,260 x $15.10 = $154,926

VOH-$26,774 / 6,200 (3,100 cases x 2hrs) = $4.32

A) Flexible Budget – "the budget allowance for variable costs should be flexed to show the costs that should have been incurred for the level of activity actually experienced". Page 576

	Budget	Actual	Variance	Flex Budget	Actual	Variance
Raw Materials	$73,080	$77,010	$3,930 Unfavorable	$78,120	$77,010	$1,110 favorable
Direct Labor	$134,850	$154,926	$20,076 unfavorable	$144,150	$154,926	$10,776 unfavorable
Variance OH	$31,900	$26,774	$5,126favorable	$34,100	$26,774	$7,326 favorable
Total	$239,830	$258,710	$18,880 unfavorable	$256,370	$258,710	$2,340 unfavorable

Step 2: Calculate the following Variances:

Quantity Variance = (standard quantity allowed- actual quantity used) x standard cost per unit - Page 580

Cost per unit of input variance = (standard cost per unit – actual cost per unit) x actual quantity used – Page 581

(Do not use the Flex Budget amounts for B-G)

B) Price Variance for raw materials purchased = ($3.60 - $3.40) x 22,650 = $4,530 favorable (cost per unit of input variance)

C) Raw materials usage variance= (20,300 – 22,650) x $3.60 = $8,460 unfavorable (quantity variance)

D) Direct Labor rate variance= ($15.50 - $15.10) x 10,260 = $4,104 favorable (cost per unit of input variance)

E) Direct labor efficiency variance= (8,700- 10,260) x $15.50 = $24,180 unfavorable (quantity variance)

F) Variable overhead spending variance= ($5.50 - $4.32) x 10,260 = $12,106 favorable (cost per unit of input variance)

G) Variable overhead efficiency variance= (5,800 - 5,120) x $5.50 = $3,740 favorable (quantity variance)

#5 Marshall, Inc., produces three products but weekly demand for the three products exceeds the available amount of machine time. Following is information about each product: **Page 624**

	Product A	Product B	Product C
Contribution margin per unit	$450	$500	$250
Machine hours per unit	1.5	2	1.25
Weekly demand units	320	300	500

Determine how many units each of Product A, Product B, and Product C that Marshall, Inc., should

Produce each week assuming 1,000 hours of available machine time.

First calculate contribution margin (cm) per unit in dollars /machine hours to get cm per unit in hours

Product A = $450/1.5 = **$300** (**Product A's contribution margin is $300 per unit when machine hours needed are considered**.)

Product B = $500/2=**$250** (**Product B's contribution margin is $250 per unit when machine hours needed are considered**.)

Product C = $250/1.25=**$200** (**Product C's contribution margin is $200 per unit when machine hours needed are considered**.)

Next determine which product has the greatest contribution margin per hour.

Product A has the greatest CM per hour than Product B or C when machine hours needed are considered.

Then determine (based on weekly demand) which product should be produced first. If there is residual machine time left, then produce the product with the next best contribution margin per hour until all the available machine hours have been used. In this problem there is **1,000 machine hours available**.

Product A - 320 (weekly demand) x 1.5 hrs (machine hours per unit) = **480 hrs** of machine time needed to produce at this demand
Product B- 300(weekly demand) x 2hrs (machine hours per unit) = **600 hrs** of machine time needed to produce at this demand
Product C - 500 (weekly demand) x 1.25hrs (machine hours per unit) = **625 hrs** of machine time needed to produce at this demand

Problem Answer:

Total Machine Hours available	1,000
Highest Product CM/per machine hour	- 480 (Product A-all of demand is met)
Machine hours available to use in production	520 (machine hours to allocate to another product)
Next highest product cm/per machine hour	- 520 (Product B- only 520 hours of demand is met)
Machine hours available to use in production	0 (all machine hours have been utilized)

First use the **480** hours of weekly demand for Product A, then use **520** hours of weekly demand of Product B to total 1000 machine hours, which are available. **Note:** Product B's total demand is not met (only 520 hours) and none of product C's demand is met. This is due to the limited machine time available to produce products.