51. K&R management has decided to change its budgeted pattern for ending inventory of raw materials. Instead of the current pattern (whatever it may be), K&R would plan to keep a constant ending inventory of thirty 5-gallon units of blue paint on hand end of every month, regardless of expected production for the following month.

If this plan is incorporated into the budget schedules, how many 5-gallon units of blue paint would K&R plan to purchase in December? Justify your answer.

K&R would just need to buy the amount required for December production

If inventories remain constant, only the amount required for production needs to be purchased.

52. Assume that Jane Green's actual results for October are as follows:

<table>
<thead>
<tr>
<th>Jane Green</th>
<th>October, 1990</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foot Stool</td>
<td>3,000</td>
</tr>
<tr>
<td>Royal Bench</td>
<td>1,000</td>
</tr>
<tr>
<td>Majestic Table</td>
<td>400</td>
</tr>
<tr>
<td>Total dollar sales</td>
<td>$ 141,000</td>
</tr>
<tr>
<td>Variable marketing costs</td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td>$ 2,800</td>
</tr>
<tr>
<td>Commissions</td>
<td>7,050</td>
</tr>
<tr>
<td>Fixed marketing costs</td>
<td></td>
</tr>
<tr>
<td>Traceable to product</td>
<td></td>
</tr>
<tr>
<td>Majestic table Promotion</td>
<td>$ 325</td>
</tr>
<tr>
<td>Not traceable to product</td>
<td></td>
</tr>
<tr>
<td>Promotion</td>
<td>$ -</td>
</tr>
<tr>
<td>Administration</td>
<td>920</td>
</tr>
</tbody>
</table>

Compute Jane's actual segment contribution for October. Show computations to support your answer.

Jane's actual sales (given, above) $ 141,000
Less variable costs:

Bgt production VC's for actual units sold

| S | 3,000 | x | 12.00 | = | 36,000 |
| B | 1,000 | x | 22.00 | = | 22,000 |
| T | 400   | x | 64.00 | = | 25,600 |

Transportation (given, above) (2,800)
Commissions (given, above) (7,050)
Contribution margin (not required) $ 47,550
Minus fixed costs traceable to Jane Promotion (325)
Administration (920)
Jane's actual segment contribution $ 46,305
53. On page 20, the budgeted maintenance labor hours used for December is 744. Show how the 744 was computed. Assume that fixed maintenance cost per month is the same for all months.

<table>
<thead>
<tr>
<th></th>
<th>Bgt DLH</th>
<th>x .10 or</th>
<th>variable maint hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>S cutting</td>
<td>1,020</td>
<td>0.10</td>
<td>102</td>
</tr>
<tr>
<td>B cutting</td>
<td>450</td>
<td>0.10</td>
<td>45</td>
</tr>
<tr>
<td>T cutting</td>
<td>1,065</td>
<td>0.10</td>
<td>106.5</td>
</tr>
<tr>
<td>Finishing</td>
<td>5,610</td>
<td>0.05</td>
<td>280.5</td>
</tr>
<tr>
<td>Total variable maint labor hours</td>
<td>534</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Computing fixed maintenance hours:

\[
\text{Fixed maintain Cost per maint fixed} = \frac{\text{534 variable maint hrs}}{210 \text{ fixed maint hrs}}
\]

\[
\text{Cost maint fixed} = 744 \text{ total maint hrs}
\]

54. The July monthly performance report for finishing (yellow page 10) in the section for overhead variances, includes the figure $4,433 in the budget column, for maintenance. Show how the $4,433 was computed.

Actual DLH in finishing, yellow page 21 4,310
Times maint cost per DLH, yellow page 21 0.75
\[
3,232.50
\]
Plus monthly fixed maint cost, yellow page 21 1,200.00
\[
4,432.50
\]

This is rounded to $4,433.

55. If the budgeted WAGES for maintenance workers doubles (from $10 per hour to $20 per hour), what will be the new budgeted cost to cut one bench. Show computations to support your answer.

Cost per maintenance hour will increase from $15 to $25 (see yellow page 22). Thus, the maintenance cost per direct labor hour will increase from $1.50 to $2.50 (yellow page 19) and the total variable OH cost per labor hour in bench cutting will rise to $3.46 (yellow page 19).

The $1 increase per DLH in bench cutting times .25 required DLH (p 2) means that each bench will cost $0.25 (.25 hours x $1) more than originally budgeted.

Original cost to cut a bench (p 2) is $ 9.24

Add the 25 cent increase 0.25

New cost to cut a bench $ 9.49
56. The budgets as originally prepared show budgeted *product contribution* for *tables* for **November** to be $50,748. How many additional tables would K&R have to sell in November to raise the budgeted *product contribution* for *tables* to twice the original level, from $50,748 to $104,496? Show computations to support your answer.

\[
\text{Increase required} \quad \begin{array}{c|c|c|c}
\$ & 50,748 & = & \$ & 50,748 & = \\
\text{CM (or MI) per table} & \frac{65,618}{1,950} & = & $ & 33.65 & \frac{1,508}{\text{more tables}}
\end{array}
\]

*There are many possible computations to find the $33.65.*

57. This question refers to **ACTUAL** inventories, not budgeted inventories: Did K&R’s actual inventories of finished goods increase or decrease between the beginning of July and the end of July? Answer for each of the three products individually (footstools, benches, tables), and show computations to support your answers.

Must compare actual units produced to actual units sold:

<table>
<thead>
<tr>
<th>Units produced, pp 18 - 21</th>
<th>Units sold, pp 18 - 21</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Footstool</td>
<td>2,600</td>
<td>2,400</td>
</tr>
<tr>
<td>Bench</td>
<td>1,400</td>
<td>1,300</td>
</tr>
<tr>
<td>Table</td>
<td>1,650</td>
<td>1,550</td>
</tr>
</tbody>
</table>

Footstool 200 increase
Bench 100 increase
Table 100 increase

'58 **Actual data for November, 1990:**

<table>
<thead>
<tr>
<th>Mary Smith</th>
<th>November, 1990</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foot Stool</td>
<td>400</td>
</tr>
<tr>
<td>Royal Bench</td>
<td>400</td>
</tr>
<tr>
<td>Majestic Table</td>
<td>400</td>
</tr>
</tbody>
</table>

Total dollar sales $68,900

Variable marketing costs
- Transportation $1,388
- Commissions $3,445

Fixed marketing costs
- Traceable to product
  - Majestic table
    - Promotion $920
- Not traceable to product
  - Promotion $ -
  - Administration 1,400
Required:
Compute Mary's volume variance for November. Show computations, and be sure to indicate whether the variance is favorable or unfavorable.

Average unit margin x difference between actual units sold and budget units

<table>
<thead>
<tr>
<th></th>
<th>Actual units</th>
<th>Budgeted units</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S</td>
<td>400</td>
<td>450</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>400</td>
<td>370</td>
</tr>
<tr>
<td></td>
<td>T</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td></td>
<td>Total units</td>
<td>1,200</td>
<td>1,220</td>
</tr>
</tbody>
</table>

Average unit margin from page 28 ($23,821 ÷ 1,220) $19.53

Decrease in units x average unit margin gives volume variance $390.51

59. The questions all relate to July fixed costs on the company income statement, p. 22.
   a. What are the three components of the $16,200 July fixed production costs? List the three items and give the dollar amount of each.

   7,000 finishing (yellow page 21)
   3,200 maintenance (yellow page 22)
   6,000 vp production (yellow page 20)
   16,200

   b. What are the three components of the $14,500 July fixed production costs? List the three items and give the dollar amount of each.

   3,600 Fc stool cutting p 29
   4,100 FC bench cutting p 32
   6,800 FC table cutting p 31
   14,500

   c. The marketing vice-president's office shows a variance of $5,800. Show how the $5,800 was computed, including the relationship of this variance to page 22.

   Budgeted marketing FC's traceable only at the company level: p 2:
   Mkt admin costs 8,000
   Mkt ad/promo - company 5,570
   Mkt ad/promo - pdt and co level 4,430
   Mkt - other 900
   18,900

   Actual marketing costs, yelo p 25 24,700 Traceable to VP of mkt
   Unfav variance (5,800)
60. Assume that K&R had decided to become a JIT company (no inventories) and that the budgets reflected that decision, beginning July 1. What would be the budgeted maintenance cost for the table cutting department for December? Show computations to support your answer.

Production would equal sales, so budgeted variable maintenance costs would depend upon budgeted sales of tables for December.

<table>
<thead>
<tr>
<th>Budgeted unit sales</th>
<th>2,420</th>
<th>page 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budgeted maintenance VC per table cut*</td>
<td>0.75</td>
<td></td>
</tr>
<tr>
<td>Variable maintenance cost</td>
<td>1.815</td>
<td></td>
</tr>
<tr>
<td>Fixed maintenance cost in table cutting</td>
<td>1,200</td>
<td>yellow p 20</td>
</tr>
<tr>
<td></td>
<td>3,015</td>
<td>assumes that maint FC is same as in July</td>
</tr>
</tbody>
</table>

*Maintenance VC per direct labor hour | 1.50 | yellow p 20 |
| DLH per table cut | 0.50 | page 3 |
| Budgeted maintenance VC per table cut | 0.75  |        |

61. How many benches would Mary Smith have to sell in December in order to double her product contribution from tables for December? Show computations to support your answer.

<table>
<thead>
<tr>
<th>Tables: p 45</th>
<th>Mary's product contribution for December</th>
<th>13,213</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Product contribution needed</td>
<td>26,426</td>
</tr>
<tr>
<td></td>
<td>includes 920 FC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>26,426</td>
<td></td>
</tr>
<tr>
<td></td>
<td>33.65</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CM per table</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(an increase of 365)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Benches p 45</th>
<th>Mary's product contribution for December</th>
<th>9,800</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Product contribution needed</td>
<td>19,600</td>
</tr>
<tr>
<td></td>
<td>no fc for benches</td>
<td></td>
</tr>
<tr>
<td></td>
<td>19,600</td>
<td></td>
</tr>
<tr>
<td></td>
<td>24.50</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CM per table</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(an increase of 400)</td>
<td></td>
</tr>
</tbody>
</table>

62. Assume that K&R had decided to abandon the desired ending inventory formula (whatever it might have been!) and to instead keep a constant inventory of raw materials and finished goods. If this assumption had been included in the budget schedules, K&R would have planned to keep an inventory of finished goods as follows:

- Footstools: 1,000 units
- Benches: 1,500 units
- Tables: 1,500 units

If this assumption had been included in the budget schedules, what number of tables would K&R have planned to manufacture in December? Show computations or otherwise justify your answer.

*The company would have planned to manufacture the same number of tables that it planned to sell: 2,420 page 4*
63. Assume that Mary Smith's actual results for July were as follows:

- Foot stool: 580
- Royal bench: 310
- Majestic table: 450

Total dollar sales: $77,000

Variable marketing costs:
- Transportation: $1,398
- Commissions: $3,500

Fixed marketing costs:
- Traceable to product:
  - Majestic table: Promotion: $620
- Not traceable to product:
  - Promotion: -
  - Administration: $1,400

REQUIRED: Compute Mary's actual contribution (not contribution margin) for July. Show computations or otherwise justify your answer.

Easiest: These are same as on yellow page 25, except for dollar sales. Thus, her actual segment contribution must be $7,000 more than that computed on yellow page 17:

\[
\begin{array}{c|c}
\text{From yellow page 17} & 20,502 \\
\hline
\text{Plus increase in sales} & 7,000 \\
\hline
\text{New segment contrib} & 27,502 \\
\end{array}
\]

Alternate computation below:

- Actual sales: $77,000

Less Variable costs:
- Production: bgt for actual units:
  - S: 580, $12, p 4, $ (6,960)
  - B: 310, $22, p 5, (6,820)
  - T: 450, $64, p 6, (28,800)

- Marketing:
  - Transportation: $ (1,398)
  - Commissions: (3,500)

Less traceable fixed costs (actual):
- Majestic table: Promotion: (620)

Actual segment contribution: $27,502
64. Each of the following figures was taken from the monthly performance report for the Table Cutting department, yellow page 9. For each of the figures, I have given the label so that you can find the correct line.

REQUIRED: EITHER show how the figure was computed or -- if the figure was take from some other page -- give the number of the page from which it was taken.

Materials usage variance
Lumber 1 x 12 $ 36,960

\[
\begin{align*}
1,650 \times 32 \times 0.70 &= 36,960 \\
\text{yellow page 20}
\end{align*}
\]

Labor efficiency variance $ 4,125

\[
\begin{align*}
1,650 \times 0.50 \times 5 &= 4,125 \\
\text{yellow page 20}
\end{align*}
\]

Labor efficiency variance $ 4,300

\[
\begin{align*}
860 \times 5 &= 4,300 \\
\text{yellow page 20}
\end{align*}
\]

Overhead variances
OH spending variances $ 2,490

\[
\begin{align*}
860 \times 1.50 &= 1,290 \\
1,200 &= 2,490 \\
\text{yellow page 20}
\end{align*}
\]

65. If the cost of gray paint rises by 20%, what will be the impact on Mary Smith’s segment contribution for the six month period? Give the amount, indicate whether it is an increase or a decrease, and show computations to support your answer.

Only the table is gray. The cost of gray paint for the table is given on p 3 as $2.80

A 20% increase in paint costs would raise the cost of the table by \((.20 \times $2.80)\), or $ 0.56

The new cost per table is $ 64.56

Mary is scheduled to sell 2,470 tables (p 32).
Her costs would increase by $1,383.20, then her profits decrease by the same amount:

\[
\text{Her costs would increase} \times 0.56 = 1,383
\]

Mary’s profits decrease by 1,383

66. Income statement, page 22, December, fixed costs:

The $12,500 marketing ad/promo costs traceable to territories is, in fact, the sum of some figures that appear on other budgets. What are the components of this cost, and what is the lowest organizational level to which the components are traceable? (Using page numbers to indicate organizational levels is fine.)

The lowest organization levels to which these costs are traceable are the territory contribution sheets, pages 23 and 24.

| East territory (p 23) | Traceable to territory as a whole | 950 |
|                       | Traceable to product at territory level | 3,550 |
| West territory (p 24) | Traceable to territory as a whole | 1,450 |
|                       | Traceable to product at territory level | 6,550 |
| **Total traceable to territories** | 12,500 |

67. On yellow page 26, there is a figure of $8,000 for “Company Administration.” If this figure had been $10,000, which performance report(s) would have been affected? How would the report(s) have been affected?

These costs are the responsibility of the president.

- His budgeted amount is from page 26, Administration, $6,000 per month.
- His actual amount is now $10,000, so he has an unfavorable variance of $4,000
- This unfavorable variance would appear on the president’s report, where the $2,000 unfavorable variance is on the original version.

68. On yellow page 4, the East Territory manager’s report, there is a cost variance of ($2,250). How was that variance computed?

- In general, it is the difference between the budgeted amounts of costs for which he is directly responsible compared to the actual amounts of those costs for July
- **Budgeted costs for which E Terr manager is directly responsible (from p 23)**
  - [Fixed costs traceable to territory, not to salespeople]
    - Marketing Administration traceable to territory | 3,450
    - Marketing Ad/promo traceable to territory as a whole | 950
    - Marketiag Ad/promo traceable to pdt. at territory | 3,550
    - Marketing Other traceable to territory | 300
  - Total budgeted amount | 8,250
- **Less actual costs for which E Terr manager is directly responsible** | (10,500) yellow
- **Unfavorable cost variance for E Territory** | (2,250) page 25

69. Explain why there are no fixed costs of production on pages 23 and 24, but some fixed costs of production are deducted on pages 29, 30, and 31.

Some fixed costs (such as fixed costs in stool cutting) are traceable to the produc!
cut (such as the footstool), so these costs are included on page 29. These fixed costs are traceable to all the footstools cut in a given period, but not to any individual footstools. Thus, the costs are not traceable to territories, and are not included on the territory pages (23 and 24).

Actual results for stool cutting department for November:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Units produced</td>
<td>4,000</td>
</tr>
<tr>
<td>Materials charged to department</td>
<td>$11,200</td>
</tr>
<tr>
<td>Labor costs</td>
<td>$5,200</td>
</tr>
<tr>
<td>Direct labor hours</td>
<td>8,000</td>
</tr>
<tr>
<td>Actual total overhead expenses</td>
<td>$7,200</td>
</tr>
</tbody>
</table>

Required: What was stool cutting's total variance for November? (You need not compute all five cost variances in order to answer this question, although you may do so.) Show computations to support your answer.

Total variance is the difference between actual costs (total) and total budgeted costs for the actual number of units produced.

Actual: 11,200+$5,200+$7,200 = 23,600
Budgeted for 4,000 units:
4,000 x $5 VC = 20,000
Plus $3,600 FC = 3,600
23,600

ZERO variance

71. Assume that K&R management believes unit sales of each product could be doubled if the company undertakes an advertising campaign costing $50,000 per month ($300,000 for the six-month period.) If this assumption had been incorporated into the budget schedules, what would have been K&R's budgeted taxable net income for the six-month period? Show computations to support your answer.

Marginal income would double, an increase of 648,748
Fixed costs would increase 300,000
Net profit increase 348,748
Original profit 127,728
New profit 476,476