COMPARE AND CONTRAST ACTIVITY-BASED COSTING WITH TRADITIONAL SYSTEMS USING A SINGLE APPLICATION BASE FOR CONVERSION COSTS, WHEN IS ACTIVITY BASED COSTING MOST VALUABLE?

EXPLAIN HOW PROPERTY TAXES ARE COMPUTED UNDER PROPOSITION 13.

21-97. Given the following products, identify which costing system would be more appropriate, job order (J) or process costing (P). Answer:

- J airplanes
- J P automobiles
- P lightbulbs
- J custom kitchen cabinets
- J swimming pools
- P cereal
- J office buildings
- J P personal computers
- P cellular telephones
- J surgical operation
14. (Job no. 007) In the space provided, give the journal entry to record the cost of direct materials used on Job no. 007.

Use these rounded present value factors in your computations as needed:

<table>
<thead>
<tr>
<th>Present value of $1 at end of</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>a period of years</td>
<td>.88</td>
<td>.77</td>
<td>.64</td>
<td>.60</td>
<td>.52</td>
</tr>
<tr>
<td>Present value of an annuity of $1 for a period of years</td>
<td>.88</td>
<td>1.65</td>
<td>2.32</td>
<td>2.90</td>
<td>3.40</td>
</tr>
</tbody>
</table>

(a) Compute the net present value of a $143,000 investment (terminal disposal price of zero) expected to produce a $40,000 cash inflow per year for five years.

(b) Compute the net present value of a $48,200 investment (terminal disposal price of zero) expected to produce cash flows as follows: $20,000 inflows for the first, second, and third years; $8,000 outflow for the fourth year; $25,000 inflow for the fifth year.

21-57. (a) NPV = ($40,000 x 2.40) - $143,000 = $136,000 - $143,000 = $7,000

(b) NPV = ($20,000 x 2.32) - ($8,000 x .60) + ($25,000 x .52) - $48,200 = $46,400

At a breakeven point of 400 units sold, the variable costs were $400 and the fixed costs were $200. What will the 401st unit sold contribute to income before income taxes?

(1) $0
(2) $0.60
(3) $1.00
(4) $1.50

3-49. ($400 + $200) / 400 = $1.50; $400 + 400 = $1.00;
     $1.50 - $1.00 = $0.50
Explain the basis you would use to allocate the cost of the following services to other departments/ divisions:

**SERVICE**

a. Payroll preparation
b. Factory cafeteria
c. Factory heating

**Basis of Allocation**

- Member of Employee
- Member of Employees

18. What is the best time to record material price variances - TIME OF PURCHASE or TIME OF USAGE? Explain.

Some of purchase allows you to isolate

volume early.

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Boyer Company manufactures basketballs. The forecasted income statement for the year before any special orders is as follows:

<table>
<thead>
<tr>
<th></th>
<th>Amount</th>
<th>Per Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>$4,000,000</td>
<td>$10.00</td>
</tr>
<tr>
<td>Manufacturing cost of goods sold</td>
<td>$2,200,000</td>
<td>$10.00</td>
</tr>
<tr>
<td>Gross profit</td>
<td>$800,000</td>
<td>$2.00</td>
</tr>
<tr>
<td>Selling expenses</td>
<td>$300,000</td>
<td>$7.50</td>
</tr>
<tr>
<td>Operating income</td>
<td>$500,000</td>
<td>$12.50</td>
</tr>
</tbody>
</table>

Fixed costs included in the above income statement are $1,200,000 in manufacturing cost of goods sold and $100,000 in selling expenses. A special order offering to buy 50,000 basketballs for $7.50 each was made to Boyer. There will be no additional selling expenses if the special order is accepted. Assuming Boyer has sufficient idle capacity to manufacture 50,000 more basketballs, by what amount would operating income be increased or decreased as a result of accepting the special order?

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26. A sunk cost is:
   (1) a cost that may be saved by not adopting an alternative
   (2) a cost that may be shifted to the future with little or no effect on current operations
   (3) a cost that cannot be avoided because it has already been incurred
   (4) a cost that entails a current or near-future outlay of cash
Middlesex Corporation manufactures two styles of lamps, a Bedford Lamp and a Lowell Lamp. The following per unit data are available:

<table>
<thead>
<tr>
<th></th>
<th>Bedford Lamp</th>
<th>Lowell Lamp</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sale price</td>
<td>$25</td>
<td>$35</td>
</tr>
<tr>
<td>Variable cost</td>
<td>$17</td>
<td>$23</td>
</tr>
<tr>
<td>Machine hours required</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

Total fixed costs are $30,000 and Middlesex can sell a maximum of 10,000 units of each style of lamp annually. Machine hour capacity is 25,000 hours per year.

Required:
1. Determine the contribution margin per unit for each type of lamp.
2. Determine the contribution margin per hour for each type of lamp.
3. Determine the number of units of each style of lamp that Middlesex should produce to maximize operating income. What is the dollar amount of the maximum operating income?

Answer:
1. Bedford: 
   $25 - $17 = $8
   $35 - $23 = $12
2. Bedford: 
   $8/2 = $4
   $12/4 = $3
3. To maximize operating income, Middlesex should produce 10,000 units of the Bedford lamp and 1,250 units of the Lowell lamp as follows:
   - 10,000 units of Bedford lamp x 2 hours = 20,000 hours
   - 1,250 units of Lowell lamp x 4 hours = 5,000 hours
   - Total = 25,000 hours

   
   \[
   \begin{align*}
   \text{10,000 x 8} &= 80,000 \\
   \text{1,250 x 12} &= 15,000 \\
   \text{Total contribution margin} &= 95,000 \\
   \text{Less fixed costs} &= 30,000 \\
   \text{Operating income} &= 65,000
   \end{align*}
   \]

Rider Company sells tricycles and gathered the following information:

<table>
<thead>
<tr>
<th></th>
<th>$75</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable expenses per unit</td>
<td></td>
</tr>
<tr>
<td>Sales price per unit</td>
<td>$82</td>
</tr>
<tr>
<td>Total fixed expenses</td>
<td>$243,600</td>
</tr>
</tbody>
</table>

Required:
Compute:
- a. Break even sales in units
- b. Target sales in units assuming a target operating income of $75,000
- c. Target sales in dollars assuming a target operating income of $135,000

Answer:
- a. $243,600/($82 - $35) = 5,187 units
- b. $243,600 + $75,000 = $318,600/47 = 6,783 units
- c. $243,600 + $135,000 = $378,600/47 = 8,060 units

 frustration, 8.060 x $82 = $660,920

L.O. 4 Difficulty: Moderate
27-113. Crossland Corporation is considering two possible expansion plans. Proposal A involves opening five new stores in East Texas at a total cost of $1,800,000. Proposal B calls for the opening of eight new stores in Southwest Texas at a total cost of $2,900,000. The company has a minimum desired rate of return of 14%. The following information is available for the two proposals:

<table>
<thead>
<tr>
<th></th>
<th>Proposal A</th>
<th>Proposal B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated residual value</td>
<td>$200,000</td>
<td>$200,000</td>
</tr>
<tr>
<td>Estimated annual net cash inflows</td>
<td>$120,000</td>
<td>$650,000</td>
</tr>
<tr>
<td>Estimated life</td>
<td>8 years</td>
<td>8 years</td>
</tr>
</tbody>
</table>

The present value of $1 due eight years from now at 14% is 0.351. The present value of $1 per year due at the end of each of eight years at 14% is 4.639.

Required:
Answer:
1. a. Proposal A:
   \[ \frac{1,800,000}{420,000} = 4.3 \text{ years payback} \]
   Proposal B:
   \[ \frac{2,900,000}{650,000} = 4.5 \text{ years payback} \]
1. b. Proposal A:
   \[ (\frac{840,000}{1,800,000 + 200,000}/8) = 22\% \text{ ARR} \]
   Proposal B:
   \[ (\frac{840,000}{2,900,000 + 200,000}/8) = 20\% \text{ ARR} \]
1. c. Proposal A:
   \[ (540,000 \times 4.639) + (820,000 \times 0.351) - 1,800,000 = $218,580 \text{ NPV} \]
   Proposal B:
   \[ (650,000 \times 4.639) + (820,000 \times 0.351) - 2,900,000 = $185,550 \text{ NPV} \]
2. Proposal A is the better investment. It has a shorter payback period, and a higher accounting rate of return and NPV.

BS 1.O. 6 Difficulty: Difficult

27-107. Unlimited Horizons, Inc. manufactured 10,000 T-shirts at a cost of $31,500. The shirts can be sold in their current condition for $60,000, or silk-screened at an additional cost of $2.25 per shirt, and then sold for $90.00 each. The silk-screening process would also require that the company rent a silk-screen machine at a fixed cost of $800.

Required:
Determine if the company should sell the T-shirts as is or process them further.

Answer:

<table>
<thead>
<tr>
<th></th>
<th>Sell As Is</th>
<th>Process Further</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase in revenues</td>
<td>$60,000</td>
<td>$90,000</td>
</tr>
<tr>
<td>Increase in costs</td>
<td>-</td>
<td>(22,500)</td>
</tr>
<tr>
<td>Increase in operating income</td>
<td>$60,000</td>
<td>$66,700</td>
</tr>
</tbody>
</table>

The company should process the T-shirts further, increasing operating income by $6,700.