

CHAPTER  
**16**

**Costs for Decision Making**

**M16.1.**

Relevant cost analysis:

Incremental selling price (\$40 - \$36).....	\$ 4.00
Incremental costs of further processing for material and labor ..... [(\$10 + \$12) * 20%]	<u>(4.40)</u>
Incremental Loss.....	<u>\$ (0.40)</u>

No, the new production changes should not be implemented and the product should be produced and sold as it is currently.

**M16.2.**

Relevant cost analysis:

Revenue.....		\$ 28.00
Direct materials.....	\$ 10.00	
Direct labor.....	12.00	
Variable overhead.....	5.00	
Fixed overhead.....	<u>0.00</u>	<u>(27.00)</u>
Contribution margin per unit.....		\$ 1.00
Additional units sold if special order is accepted.....		<u>8,000</u>
<b>Increase in contribution margin and operating income.....</b>		<b><u>\$8,000</u></b>

Yes, the offer should be accepted because the "relevant cost" of \$27 is less than the \$30 selling price for the special order, thus increasing both contribution margin and operating income by \$1.00 per unit. Fixed overhead cost is not relevant because Lakeside has current unused capacity. However, pertinent qualitative factors should also be considered.

**M16.3.**

Relevant cost analysis:	Current Production Costs	Avoidable Cost if Purchased	Cost to Buy
Manufacturing costs:			
Direct material.....	\$10.00	\$0.00	
Direct labor.....	12.00	(30%) 3.60	
Variable overhead.....	5.00	(30%) 1.50	
Fixed overhead.....	<u>5.00</u>	<u>0.00</u>	
Total cost per unit .....	<u>\$32.00</u>	<u>\$ 5.10</u>	
Purchase costs:			
Conversion processing.....			<u>\$4.00</u>
<b>Advantage to buy.....</b>			<b><u>\$1.10</u></b>

Lakeside should consider outsourcing this part of the conversion processing because contribution margin and operating would increase by the \$1.10 per unit savings. However, pertinent qualitative factors should also be considered.

**E16.11.**

Differential cost analysis:

Incremental selling price (\$36 - \$29).....	\$ 7
Incremental costs of further processing..... (\$40,000 / 5,000 gallons)	<u>(8)</u>
Incremental Profit.....	<u><u>\$(1)</u></u>

No, the basic compound should be sold as is for \$29 per gallon. Further processing will result in a decrease in profits of \$5,000 (5,000 gallons x \$1 incremental loss).

**E16.12.**

a.

	Tons	
Alpha production:	<u>350,000</u>	
Delta product yield (350,000 x 60%).....		<u>210,000</u>
Pi product yield (350,000 x 40%).....		<u>140,000</u>
Differential cost analysis – Super Delta:		
Incremental selling price (\$12 - \$6) .....		\$ 6
Incremental costs of further processing..... (\$1,680,000 / 210,000 tons)		<u>(8)</u>
Incremental Profit.....		<u>\$(2)</u>
Differential cost analysis – Precision Pi:		
Incremental selling price (\$25 - \$15) .....		\$10
Incremental costs of further processing..... (\$1,120,000 / 140,000 tons)		<u>(8)</u>
Incremental Profit.....		<u>\$ 2</u>

Delta should be sold as is for \$6 per ton and Pi should be processed further and sold as Precision Pi for \$25 per ton.

b. The \$675,000 cost incurred to produce the Alpha ore is a sunk cost and is not relevant to the decision to sell Delta or Pi as is or process either product further.

c. Sales:

Delta (\$6 x 210,000 tons) .....	\$1,260,000	
Precision Pi (\$25 x 140,000 tons) .....	<u>3,500,000</u>	\$4,760,000
Production costs:		
Alpha ore mining costs.....	\$ 675,000	
Processing Pi into Precision Pi.....	<u>1,120,000</u>	<u>1,795,000</u>
Maximum profit.....		<u><b>\$2,965,000</b></u>

**E16.17.**

	Current Production Costs	Avoidable Cost if Purchased	Cost to Buy
Manufacturing costs:			
Direct material.....	\$ 160	\$ 160	
Direct labor.....	80	80	
Variable overhead (\$80 x 20%)....	16	16	
Fixed overhead (\$80 x 80%).....	<u>64</u>	<u>0</u>	
Total cost per unit .....	<u>\$ 320</u>	<u>\$ 256</u>	
Purchase costs:			
Engine assembly part sets.....			<u>\$ 270</u>
<b>Advantage to make.....</b>		<u><b>\$ 14</b></u>	

Lakeview Engine, Inc. should continue to produce the engine part sets because the costs they can avoid by buying the part sets are less than the outside purchase cost.