

## Exercise E22-5

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<b>(a)</b>	<b>Sales</b>	<b>\$81,000</b>	<b>\$30.00</b>	<b>100%</b>
	<b>Variable</b>	<u><b>56,700</b></u>	<u><b>21.00</b></u>	<u><b>70%</b></u>
	<b>Cont Margin</b>	<u><b>\$24,300</b></u>	<u><b>\$ 9.00</b></u>	<u><b>30%</b></u>

**(b)**

$$\begin{aligned}
 \text{Sales} &= \text{Fixed Costs} + \text{Variable Costs} \\
 S &= \$18,000 + .70S \\
 S - .70S &= \$18,000 \\
 .30S &= \$18,000 \\
 S &= \$60,000
 \end{aligned}$$

**Alternate:**

$$\begin{aligned}
 S &= \frac{\text{FC}}{\text{CMR}} \\
 S &= \frac{\$18,000}{30\%} \\
 S &= \$60,000
 \end{aligned}$$

**In units:**

$$\begin{aligned}
 S^u &= \frac{S^{\$}}{\text{sales price per unit}} \\
 S^u &= \frac{\$60,000}{\$30} \\
 S^u &= 2,000 \text{ units}
 \end{aligned}$$

## Exercise E22-5 (continued)

$$(c) \quad MS = \frac{S^A - S^{BE}}{S^A}$$

$$MS = \frac{\$81,000 - \$60,000}{\$81,000}$$

$$MS = \frac{\$21,000}{\$81,000}$$

$$MS = 26\%$$

## Exercise E22-6 pages 987

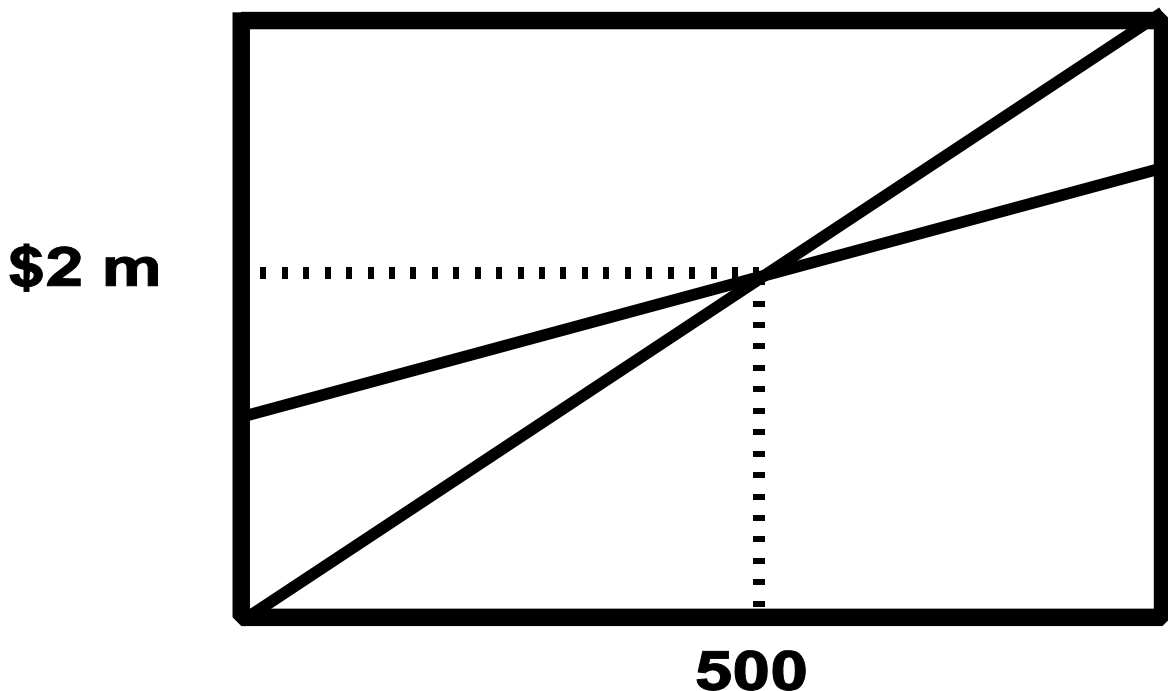
$$\begin{aligned}
 \text{(b) (2)} \quad S &= FC + VC \\
 S &= \$800,000 + .60S \\
 S - .60S &= \$800,000 \\
 .40S &= \$800,000 \\
 S &= \$2,000,000
 \end{aligned}$$

$$\text{(b) (1)} \quad S^u = \frac{S^\$}{\text{sales price per unit}}$$

$$S^u = \frac{\$2,000,000}{\$4}$$

$$S^u = 500,000 \text{ units}$$

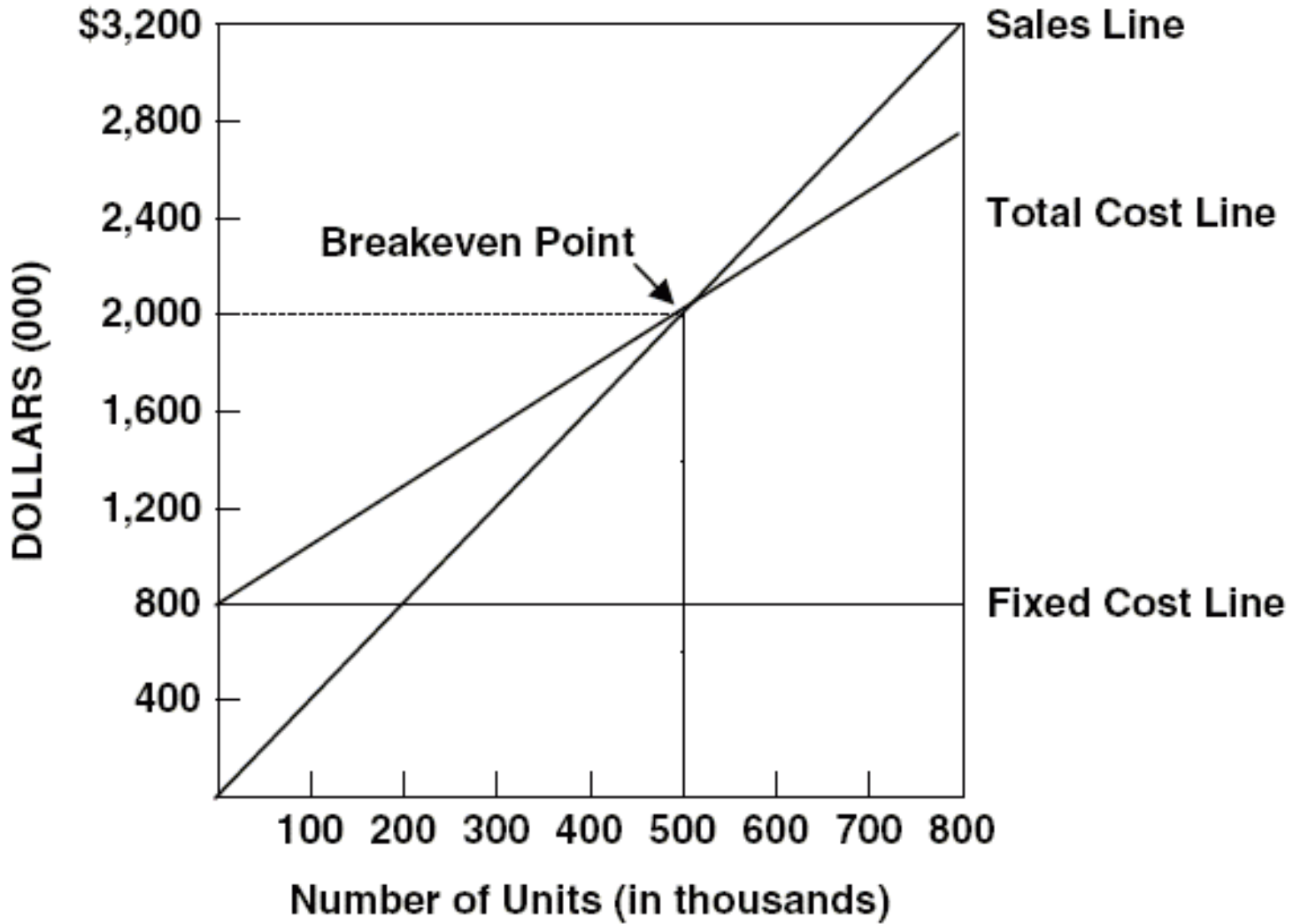
(a)



# Exercise E22-6

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(a)



## Exercise E22-6 (continued)

$$(c)(1) \quad MS = \frac{S^A - S^{BE}}{S^A}$$

$$MS = \frac{\$2.5m - \$2.0m}{\$2.5m}$$

$$MS = \frac{\$500,000}{\$2.5m}$$

$$MS = 20\%$$

**Exercise E22-9**  
**page 988**

(a)

$$S = FC + VC + TNI$$
$$S = \$570,000 + .60S + \$150,000$$
$$S - .60S = \$570,000 + \$150,000$$
$$.40S = \$720,000$$
$$S = \$1,800,000 \quad \text{present sales in dollars}$$
$$\frac{\$1,800,000}{\$150} = 12,000 \text{ units}$$

(b)

$$S = FC + VC + TNI$$
$$S = \$570,000 + .60S + \$210,000$$
$$S - .60S = \$570,000 + \$210,000$$
$$.40S = \$780,000$$
$$S = \$1,950,000 \quad \text{sales needed}$$
$$\frac{\$1,950,000}{\$150} = 13,000 \text{ units}$$

## Exercise E22-9 (continued)

$$\begin{aligned} \text{(c)} \quad S^U &= \frac{FC + TNI}{CM^U} \\ 12,000^U &= \frac{\$570,000 + \$210,000}{(X - \$90)} \\ 12,000(X - \$90) &= \$780,000 \\ (X - \$90) &= \frac{\$780,000}{12,000} \\ (X - \$90) &= \$65 \\ X &= \$155 \quad \text{(required sales price per unit)} \end{aligned}$$

# Exercise E23-10

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## Present

Sales	\$350,000
VC	<u>210,000</u>
CM	\$140,000
FC	<u>90,000</u>
NI	<u>\$ 50,000</u>

## 1. Increase selling price by 10%

Sales	\$385,000
VC (no change?)	<u>210,000</u>
CM	\$175,000
FC	<u>90,000</u>
NI	<u>\$ 85,000</u>

## 2. Reduce VC to 65% of sales

Sales	\$350,000
VC (55% x \$350,000)	<u>192,500</u>
CM	\$157,500
FC	<u>90,000</u>
NI	<u>\$ 67,500</u>

## 3. Reduce FC by \$10,000

Sales	\$350,000
VC	<u>210,000</u>
CM	\$140,000
FC	<u>80,000</u>
NI	<u>\$ 60,000</u>

**Exercise E22-11**  
**page 988**

**Polzin Company**  
**Income Statement - VARIABLE Costing**  
**Present Conditions**  
**For the Year Ended December 31, 2008**

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<b>Sales (60,000 x \$25)</b>	<b>\$1,500,000</b>
<b>Variable Costs (60,000 x \$14)</b>	<u><b>840,000</b></u>
<b>Contribution Margin</b>	<b>\$ 660,000</b>
<b>Fixed Costs</b>	<u><b>500,000</b></u>
<b>Income from Operations</b>	<u><b>\$ 160,000</b></u>

**Proposed Conditions**

<b>Sales (\$25 - \$1.40 = \$23.60) x (60,000 x 1.07 = 64,200)</b>	<b>\$1,515,120</b>
<b>Variable Costs (64,200 x \$11.20)</b>	<u><b>719,040</b></u>
<b>Contribution Margin</b>	<b>\$ 796,080</b>
<b>Fixed Costs (\$500,000 + \$60,000)</b>	<u><b>560,000</b></u>
<b>Income from Operations</b>	<u><b>\$ 236,080</b></u>

**Brief Exercise BE22-6**  
**page 986**

$$\begin{aligned} \text{(a) Sales} &= \text{Fixed Costs} + \text{Variable Costs} \\ S &= \$210,000 + (260/400)S \\ S &= \$210,000 + .65S \\ S - .65S &= \$210,000 \\ .35S &= \$210,000 \\ S &= \$600,000 \end{aligned}$$

$$\begin{aligned} \text{(b)} \quad S &= \frac{\text{FC}}{\text{UCM}} \\ S &= \frac{\$210,000}{(400 - 260)} \\ S &= \frac{\$210,000}{\$140} \\ S &= 1,500 \text{ units} \end{aligned}$$

**Brief Exercise BE23-8**  
**page 986**

$$MS = \frac{S^A - S^{BE}}{S^A}$$

$$MS = \frac{\$1.2m - \$900,000}{\$1.2m}$$

(a)  $MS = \frac{\$300,000}{\$1.2m}$

(b)  $MS = 25\%$

**Brief Exercise BE22-9**  
**page 986**

**Dilts Manufacturing, Inc.**  
**Income Statement - VARIABLE Costing**  
**For the Quarter Ended March 31, 2008**

<b>Sales</b>		<b>\$1,800,000</b>
<b>Variable Costs</b>		<u><b>760,000</b></u>
<b>Manufacturing Margin</b>		<b>\$1,040,000</b>
<b>Variable Expenses (95 + 79)</b>		<u><b>174,000</b></u>
<b>Contribution Margin</b>		<b>\$ 866,000</b>
<b>Fixed Costs</b>	<b>\$540,000</b>	
<b>Fixed Expenses (60+66)</b>	<u><b>126,000</b></u>	<u><b>666,000</b></u>
<b>Income from Operations</b>		<u><b>\$ 300,000</b></u>

## Brief Exercise BE23-7

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Compute the PRESENT breakeven point.

$$\begin{array}{rclcl} \text{Sales} & = & \text{Fixed Costs} & + & \text{Variable Costs} \\ S & = & \$210,000 & + & .70S \\ S - .70S & = & \$210,000 & & \\ .30S & = & \$210,000 & & \\ S & = & \$700,000 & & \end{array}$$

Compute the req sales to achieve mgt's TNI.

$$\begin{array}{rclclcl} \text{Sales} & = & \text{FC} & + & \text{VC} & + & \text{TNI} \\ S & = & \$210,000 & + & .70S & + & \$60,000 \\ S - .70S & = & \$210,000 & + & & + & \$60,000 \\ .30S & = & \$270,000 & & & & \\ S & = & \$900,000 & & & & \end{array}$$