

Question #1 of 39

Given the following information on the annual operating results for ArtFrames, a producer of quality metal picture frames:

- Sales of \$3,500,000.
- Variable costs at 45% of sales.
- Fixed costs of \$1,050,000.
- Debt interest payments on \$750,000 issued at par with an annual 9.0% coupon; market yield is currently 7.0%.

ArtFrames's degree of operating leverage (DOL) and degree of financial leverage (DFL) are *closest to*:

	<u>DOL</u>	<u>DFL</u>	
A)	3.00	1.50	✗
B)	2.20	1.08	✓
C)	2.20	1.50	✗

Explanation

$DOL = (\text{sales} - \text{variable costs}) / (\text{sales} - \text{variable costs} - \text{fixed costs})$

Variable costs = \$3,500,000 × 45% = \$1,575,000

Fixed costs = \$1,050,000

$$DOL = (\$3,500,000 - \$1,575,000) / (\$3,500,000 - \$1,575,000 - \$1,050,000) = 2.20$$

$DFL = EBIT / (EBIT - \text{interest})$

Interest = \$750,000 × 9% = \$67,500

EBIT = sales - variable costs - fixed costs = \$3,500,000 - \$1,575,000 - \$1,050,000 = \$875,000

$$DFL = \$875,000 / (\$875,000 - \$67,500) = 1.08$$

(Study Session 11, Module 36.1, LOS 36.b)

Question #2 of 39

Variability in a firm's operating income is *most closely* related to its:

- A) financial risk. ✗
- B) business risk. ✓
- C) internal risk. ✗




Explanation

Business risk is the uncertainty regarding the operating income of a company. Financial risk refers to the uncertainty caused by the fixed cost associated with borrowed money.

(Study Session 11, Module 36.1, LOS 36.a)

Question #3 of 39

Which of the following statements about business risk and financial risk is *least* accurate?

- A) The greater a company's business risk, the higher its optimal debt ratio. 
- B) Factors that affect business risk are demand, sales price, and input price variability. 
- C) Business risk is the riskiness of the company's assets if it uses no debt. 

Explanation

The greater a company's business risk, the *lower* its optimal debt ratio.




(Study Session 11, Module 36.1, LOS 36.a)

Question #4 of 39

Annah Korotkin is the sole proprietor of CoverMeUp, a business that designs and sews outdoor clothing for dogs. Each year, she rents a booth at the regional Pet Expo and sells only blankets. Korotkin views the Expo as primarily a marketing tool and is happy to breakeven (that is, cover her booth rental). For the last 3 years, she has sold exactly enough blankets to cover the \$750 booth rental fee. This year, she decided to make all blankets for the Expo out of high-tech waterproof/breathable material that is more expensive to produce, but that she believes she can sell for a higher profit margin. Information on the two types of blankets is as follows:

Per Unit	Last Year's (Basic) Blanket	This Year's (New) Blanket
Sales Price	\$25	\$40
Variable Cost	\$20	\$33

Assuming that Korotkin remains most interested in covering the booth cost (which has increased to \$840), how many more or fewer blankets (new style) does she need to sell to cover the booth cost? To cover this year's booth costs, Korotkin needs to sell:

- A) 42 more blankets than last year. 
- B) 42 fewer blankets than last year. 
- C) 30 fewer blankets than last year. 

Explanation

To obtain this result, we need to calculate Last Year's Breakeven Quantity, This Year's Breakeven Quantity, and calculate the difference.

Step 1: Determine Last Year's (Basic Blanket) breakeven quantity:

$$Q_{BE} = (\text{Fixed Costs}) / (\text{Sales Price per unit} - \text{Variable Cost per unit}) = 750 / (25 - 20) = 150$$

Step 2: Determine This Year's (New Blanket) breakeven quantity:

$$Q_{BE} = (\text{Fixed Costs}) / (\text{Sales Price per unit} - \text{Variable Cost per unit}) = 840 / (40 - 33) = 120$$

Step 3: Determine Change in Units:

$$\Delta Q = Q_{\text{This Year}} - Q_{\text{Last Year}} = 120 - 150 = -30. \text{ Korotkin needs to sell 30 fewer blankets.}$$

(Study Session 11, Module 36.1, LOS 36.d)

Question #5 of 39

Which of the following factors is *least likely* to affect business risk?

- A) Demand variability.
- B) Operating leverage.
- C) Interest rate variability.



Explanation

Business risk can be defined as the uncertainty inherent in a firm's return on assets (ROA). While changes in interest rates may impact the demand or input prices, there is a more direct impact on business risk with the other two choices.

(Study Session 11, Module 36.1, LOS 36.a)

Question #6 of 39

A company's use of financial leverage:

- A) decreases default risk and decreases potential return on equity.
- B) increases default risk and increases potential return on equity.
- C) increases default risk and decreases potential return on equity.



Explanation

Issuing debt introduces default risk. The interest expense associated with using debt represents a fixed cost that reduces net income. However, compared to financing entirely with equity, the lower net income is spread over a smaller base of shareholders' equity. This financing structure increases the potential return on equity.

(Study Session 11, Module 36.1, LOS 36.c)

Question #7 of 39

Hughes Continental is assessing its business risk. Which of the following factors would *least likely* be considered in the analysis?

- A) Input price variability.
- B) Debt-equity ratio.
- C) Unit sales levels.






Explanation

The main factors affecting business risk are demand variability, sales price variability, input price variability, ability to adjust output prices, and operating leverage. Debt levels affect financial risk, not business (operating) risk.

(Study Session 11, Module 36.1, LOS 36.a)

Question #8 of 39

Which of the following *best* describes a firm with low operating leverage? A large change in:

- A) the number of units a firm produces and sells result in a similar change in the firm's earnings before interest and taxes. 
- B) sales result in a small change in net income. 
- C) earnings before interest and taxes result in a small change in net income. 

Explanation

Operating leverage is the result of a greater proportion of fixed costs compared to variable costs in a firm's capital structure and is characterized by the sensitivity in operating income (earnings before interest and taxes) to change in sales. A firm that has equal changes in sales and operating income would have low operating leverage (the least it can be is one). Note that the relationship between operating income and net income is impacted by the degree of financial leverage, and the relationship between sales and net income is impacted by the degree of total leverage.




(Study Session 11, Module 36.1, LOS 36.b)

Question #9 of 39

FCO, Inc. (FCO) is comparing EBIT forecasts to help determine the impact its capital structure has on net income.

	Expected EBIT	EBIT + 10%
EBIT	\$80,000	\$88,000
Interest expense	<u>15,000</u>	<u>15,000</u>
EBT	65,000	73,000
Taxes	<u>26,000</u>	<u>29,200</u>
Net income	39,000	43,800
Liabilities	200,000	
Shareholder equity	250,000	
Return on equity	15.60%	

FCO's degree of financial leverage is *closest* to:

- A) 1.25. 
- B) 0.60. 
- C) 0.80. 

Explanation

The degree of financial leverage (DFL) is interpreted as the ratio of the percentage change in net income to the percentage change in EBIT. FCO can compare two EBIT forecasts to determine how net income is being driven by financial leverage.




$$DFL = \frac{(NI_1 - NI_0)/NI_0}{(EBIT_1 - EBIT_0)/EBIT_0}$$

$$DFL = \frac{(43,800 - 39,000)/39,000}{(88,000 - 80,000)/80,000} = \frac{0.123}{0.100} = 1.23$$

(Study Session 11, Module 36.1, LOS 36.b)

Question #10 of 39

Which of the following statements regarding leverage is *most* accurate?

- A) High levels of financial leverage increase business risk while high levels of operating leverage will decrease business risk. 
- B) A firm with high business risk is more likely to increase its use of financial leverage than a firm with low business risk. 
- C) A firm with low operating leverage has a small proportion of its total costs in fixed costs. 




Explanation

A firm with high operating leverage has a high percentage of its total costs in fixed costs.

(Study Session 11, Module 36.1, LOS 36.b)

Question #11 of 39

Additional debt should be used in the firm's capital structure if it increases:

- A) the value of the firm. 
- B) firm earnings. 
- C) earnings per share. 

Explanation

The key to finding the optimal capital structure is identifying the level of debt that will maximize firm value. Earnings and earnings per share are not critical in and of themselves when assessing firm value, because they do not consider risk.

(Study Session 11, Module 36.1, LOS 36.c)

Question #12 of 39

All else equal, a firm's business risk is higher when:

- A) fixed costs are the highest portion of its expense. 

B) the firm has low operating leverage.



C) variable costs are the highest portion of its expense.



Explanation

The higher the percentage of a firm's costs that are fixed, the higher the operating leverage, and the greater the firm's business risk and the more susceptible it is to business cycle fluctuations.

(Study Session 11, Module 36.1, LOS 36.a)

Question #13 of 39

Jayco, Inc., sells blue ink for \$4.00 a bottle. The ink's variable cost per bottle is \$2.00. Ink has fixed cost of \$10,000. What is Jayco's breakeven point in units?

A) 6,000.



B) 5,000.



C) 2,500.



Explanation

$$Q_{BE} = [FC] / (P - V)$$

$$Q_{BE} = [10,000] / (4.00 - 2.00) = 5,000$$

(Study Session 11, Module 36.1, LOS 36.d)

Question #14 of 39

Steven's Bakery produces snack cakes and bread. Listed below are the operating costs for the snack cakes division and the bread division.

	Snack cakes	Bread
Price per package	\$2.00	\$2.50
Variable cost per package	\$1.00	\$1.30
Fixed operating costs	\$25,000	\$30,000
Fixed financing costs	\$10,000	\$10,000

Compared to the snack cakes division, the operating breakeven quantity for the bread division is:

A) less.



B) greater.



C) the same.



Explanation

The operating breakeven quantity for the snack cakes division is $\$25,000 / (\$2.00 - \$1.00) = 25,000$.

The operating breakeven quantity for the bread division is $\$30,000 / (\$2.50 - \$1.30) = 25,000$.

(Study Session 11, Module 36.1, LOS 36.e)

Question #15 of 39

Financial leverage magnifies:

- A) operating income variability.
- B) taxes.
- C) earnings per share variability.



Explanation

Financial leverage results in the existence of required interest payments and, hence, increased earnings per share variability. Higher debt ratios, given a fixed asset base, result in a greater earnings per share variability. Operating income is based on the products and assets of the firm and not on the firm's financing and, hence, has no impact on financial leverage. Greater financial leverage is likely to reduce taxes due to the tax deductibility of interest payments.

(Study Session 11, Module 36.1, LOS 36.c)

Question #16 of 39

Nelson, Inc. has fixed financing costs of \$3 million, fixed operating costs of \$5 million, and variable costs of \$2.00 per unit. If the price of Nelson's product is \$4.00, Nelson's operating breakeven quantity of sales is:

- A) 4.0 million units.
- B) 1.0 million units.
- C) 2.5 million units.



Explanation

Operating breakeven quantity = fixed operating costs / (price – variable cost per unit) = \$5 million / (\$4.00 – \$2.00) = 2,500,000 units.

(Study Session 11, Module 36.1, LOS 36.e)

Question #17 of 39

The additional risk a firm's common shareholders must bear when a firm uses fixed cost financing is *best* described as:

- A) operating risk.
- B) financial risk.
- C) business risk.



Explanation

When a company finances its operations with fixed cost financing (debt), it takes on fixed expenses in the form of interest payments. The greater the proportion of debt in a firm's capital structure, the greater the firm's financial risk.

Business risk refers to the risk associated with a firm's operating income. Operating risk refers to the additional uncertainty about operating earnings caused by fixed operating costs.

(Study Session 11, Module 36.1, LOS 36.a)

Question #18 of 39

Which of the following sources of financing is *least likely* to increase a firm's financial risk?

A) Operating leases.



B) Common equity.



C) Fixed-rate debt.



Explanation

Financial risk, in the context of a firm's financing of its operations, results from taking on fixed financial obligations such as debt or operating leases. Common equity financing does not involve fixed obligations.

(Study Session 11, Module 36.1, LOS 36.a)

Question #19 of 39

If a 10% increase in sales causes EPS to increase from \$1.00 to \$1.50, and if the firm uses no debt, then what is its degree of operating leverage?

A) 5.0.



B) 4.2.



C) 4.7.



Explanation

Upon first glance, it appears there is not enough information to complete the problem. However when one realizes $DTL = (DOL)(DFL)$ it is possible to complete this problem.

$$DTL = \frac{\% \Delta EPS}{\% \Delta Sales} = 5$$

$$DFL = \frac{EBIT}{EBIT - I} = 1.$$

$$(DOL)(1) = 5$$

$$DOL = 5.$$

(Study Session 11, Module 36.1, LOS 36.b)

Question #20 of 39

All else equal, which of the following statements about operating leverage is *least* accurate?

A) Operating leverage reflects the tradeoff between variable costs and fixed costs.



B) Lower operating leverage generally results in a higher expected rate of return.



C) Firms with high operating leverage experience greater variance in operating income.



Explanation

Operating leverage is the trade off between fixed and variable costs. Higher operating leverage typically is indicative of a firm with higher levels of risk (greater income variance). Given the positive risk/return relationship, higher operating leverage firms are expected to have a higher rate of return. And, lower operating leverage firms are expected to have a lower rate of return.

(Study Session 11, Module 36.1, LOS 36.b)

Question #21 of 39

Wanton's San Ysidro Co. manufactures custom door knobs for international clients. Average Revenue is \$35 per unit, variable costs are \$15 per unit, and total costs are \$200,000. If sales are 10,000 units, what is the firm's breakeven sales quantity?

A) 2,500 units.



B) 1,750 units.



C) 3,000 units.



Explanation

For this problem you need 2 equations.

Break-even quantity = Fixed Costs / (Price - Variable cost)

$$Q = FC / (P - V)$$

Fixed Costs = Total Costs - Variable Costs

$$FC = TC - VC = 200,000 - 150,000 = 50,000$$

$$Q = 50,000 / (35 - 15) = 2,500$$

(Study Session 11, Module 36.1, LOS 36.d)

Question #22 of 39

Myron Jackson is a private equity fund manager specializing in distressed companies. His investment philosophy is based on the principle that capital structure problems can be fixed, but industry characteristics dictate business models. Jackson would *most likely* be interested in distressed firms with which of the following characteristics?

A) High operating risk and high financial risk.



B) High operating risk and low financial risk.



C) High financial risk and low operating risk.



Explanation

Financial risk refers to the capital structure, while operating risk refers to the operating cost structure. A firm's capital structure is well within the control of management as to how much debt to assume. In contrast, a firm's operating cost structure is usually driven by industry characteristics. This distressed firm's specialist would be looking for firms with capital structure problems that can be solved with an increase in equity capital and a reduction in debt financing. Changing the operating characteristics of the industry is far more challenging.

(Study Session 11, Module 36.1, LOS 36.a)

Question #23 of 39

During a period of expansion in the economy, compared to firms with lower operating expense levels, earnings growth for firms with high operating leverage will be:

A) higher.



B) unaffected.



C) lower.



Explanation

If a high percentage of a firm's total costs are fixed, the firm is said to have high operating leverage. High operating leverage, other things held constant, means that a relatively small change in sales will result in a large change in operating income. Therefore, during an expansionary phase in the economy a highly leveraged firm will have higher earnings growth than a lesser leveraged firm. The opposite will happen during an economic contraction.

(Study Session 11, Module 36.1, LOS 36.b)

Question #24 of 39

Given the following information on the annual operating results for ArtFrames, a producer of quality metal picture frames, what is the degree of operating leverage (DOL) and the degree of financial leverage (DFL)?

- Sales of \$3.5 million
- Variable Costs at 45% of sales
- Fixed Costs of \$1.05 million
- Debt interest payments on \$750,000 issued at par with an annual 9.0% coupon (current yield is 7.0%)

Which of the following choices is *closest* to the correct answer? ArtFrame's DOL and DFL are:

	<u>DOL</u>	<u>DFL</u>	
A)	2.20	1.08	
B)	3.00	1.50	
C)	2.20	1.50	

Explanation

The calculations are as follows:

First, calculate the operating results:

ArtFrames Annual Operating Results
Sales \$3,500,000
Variable Costs ¹1,575,000
Fixed Costs ¹1,925,000
Earnings before interest and taxes (EBIT) ¹875,000
Interest Expense ²807,500
Variable costs = $0.45 \times 3,500,000$
Interest Expense = $0.09 \times 750,000$

Second, calculate DOL:

$$\begin{aligned} \text{DOL} &= (\text{Sales} - \text{Variable Costs}) / (\text{Sales} - \text{Variable Costs} - \text{Fixed Costs}) \\ &= (3,500,000 - 1,575,000) / (3,500,000 - 1,575,000 - 1,050,000) = 2.20 \end{aligned}$$

Third, calculate DFL:

$$\text{DFL} = \text{EBIT} / (\text{EBIT} - \text{I}) = 875,000 / 807,500 = 1.08$$

(Study Session 11, Module 36.1, LOS 36.b)

Question #25 of 39

The two major types of risk affecting a firm are:

- A) business risk and financial risk.
- B) financial risk and cash flow risk.
- C) business risk and collection risk.



Explanation

Business risk is the uncertainty regarding the operating income of a company. Financial risk refers to the uncertainty caused by the fixed cost associated with borrowed money.

(Study Session 11, Module 36.1, LOS 36.a)

Question #26 of 39

As financial leverage increases, what will be the impact on the expected rate of return and financial risk?

- A) Both will fall.
- B) One will rise while the other falls.
- C) Both will rise.



Explanation

A higher breakeven point resulting from increased interest costs associated with debt financing increases the risk of the company. Since the risk is tied to firm financing, it is referred to as financial risk. Given the positive risk-return relationship, the expected return of the company's common stock also rises.

(Study Session 11, Module 36.1, LOS 36.b)

Question #27 of 39

The combination of operating risk and sales risk is known as:

- A) business risk.
- B) gearing risk.
- C) financial risk.



Explanation

Business risk is the combination of sales risk and operating risk. Business risk refers to the risk associated with a firm's operating income and is the result of uncertainty about a firm's revenues and the expenditures necessary to produce those revenues.

Sales risk is the uncertainty about the firm's sales. Operating risk refers to the additional uncertainty about operating earnings caused by fixed operating costs. The greater the proportion of fixed costs to variable costs, the greater a firm's operating risk.

Financial risk refers to the additional risk that the firm's common stockholders must bear when a firm uses fixed cost (debt) financing. Gearing is a British term that refers to leverage.

(Study Session 11, Module 36.1, LOS 36.a)

Question #28 of 39

Jayco, Inc. sells 10,000 units at a price of \$5 per unit. Jayco's fixed costs are \$8,000, interest expense is \$2,000, variable costs are \$3 per unit, and earnings before interest and taxes (EBIT) is \$12,000. What is Jayco's degree of financial leverage (DFL) and total leverage (DTL)?

- | | <u>DFL</u> | <u>DTL</u> |
|---------|------------|------------|
| A) 1.33 | 2.00 | |
| B) 1.20 | 2.00 | |
| C) 1.33 | 1.75 | |



Explanation

$$\text{DOL} = [Q(P - V)] / [Q(P - V) - F] = [10,000(5 - 3)] / [10,000(5 - 3) - 8,000] = 1.67$$

$$\text{DFL} = \text{EBIT} / (\text{EBIT} - I) = 12,000 / (12,000 - 2,000) = 1.2$$

$$\text{DTL} = \text{DOL} \times \text{DFL} = 1.67 \times 1.2 = 2.0$$

(Study Session 11, Module 36.1, LOS 36.b)

Question #29 of 39

Jayco, Inc. has a division that makes red ink for the accounting industry. The unit has fixed costs of \$10,000 per month, and is expected to sell 40,000 bottles of ink per month. If the variable cost per bottle is \$2.00 what price must the division charge in order to breakeven?

- A) \$2.50.
- B) \$2.25.
- C) \$2.75.



Explanation

$$40,000 = \$10,000 / (P - \$2)$$

$$40,000P - \$80,000 = \$10,000$$

$$P = \$90,000 / 40,000 = \$2.25.$$

(Study Session 11, Module 36.1, LOS 36.d)

Question #30 of 39

Which of the following statements regarding the impact of financial leverage on a company's net income and return on equity (ROE) is *most* accurate?

- A) Using financial leverage increases the volatility of ROE for a level of volatility in operating income. ✓
- B) Increasing financial leverage increases both risk and potential return of existing bondholders. ✗
- C) If a firm has a positive operating profit margin, using financial leverage will always increase ROE. ✗

Explanation

If a firm is financed with 100% equity, there is a direct relationship between changes in the firm's ROE and changes in operating income. Adding financial leverage (debt) to the firm's capital structure will cause ROE to become much more volatile and ROE will change more rapidly for a given change in operating income. The increased volatility in ROE reflects an increase in both risk and potential return for equity holders. Note that financial leverage results in increased default risk, but since existing bond holders are compensated by coupon interest and return of principal, their potential return is unchanged. Although financial leverage will generally increase ROE if a firm has a positive operating margin (EBIT/Sales), if the operating margin were small, the added interest expense could turn the firm's net profit margin negative, which would in turn make ROE negative.

(Study Session 11, Module 36.1, LOS 36.c)

Question #31 of 39

Yangtze Delta High Technology produces multimedia-enabled wireless phones. The factory incurs rent, depreciation, salary, and other fixed costs totaling RMB 10 million per year. Also, the company incurs annual interest of RMB 3 million on debt. Each phone sold by Yangtze Delta sells for RMB 200. The variable cost per phone is RMB 150. Yangtze Delta's operating breakeven quantity of sales is *closest to*:

- A) 260,000. ✗
- B) 65,000. ✗
- C) 200,000. ✓

Explanation

The operating breakeven point is the quantity of product sold at which operating income is zero (revenue equals operating cost).

F = Fixed operating cost = RMB 10,000,000

P = Price per unit = RMB 200

V = Variable cost per unit = RMB 150

Operating breakeven quantity = $F / (P - V) = 10,000,000 / (200 - 150) = 200,000$.

(Study Session 11, Module 36.1, LOS 36.e)

Question #32 of 39

Which of the following is a key determinant of operating leverage?

A) The competitive nature of the business.



B) Level and cost of debt.



C) The tradeoff between fixed and variable costs.



Explanation

Operating leverage can be defined as the trade off between variable and fixed costs.

(Study Session 11, Module 36.1, LOS 36.c)

Question #33 of 39

The uncertainty in return on assets due to the nature of a firm's operations is known as:

A) financial leverage.



B) tax efficiency.



C) business risk.



Explanation

Business risk is a function of the firm's revenue and expenses, resulting in operating income, or earnings before interest and taxes (EBIT). The main factors affecting business risk are demand variability, sales price variability, input price variability, ability to adjust output prices, and operating leverage. Tax efficiency is tied to mutual fund investing, while financial leverage requires the existence of debt.

(Study Session 11, Module 36.1, LOS 36.a)

Question #34 of 39

An analyst has gathered the following expenditure information for three different firms, each of which has a sales level of \$4 million.

Costs for firms under consideration (in millions)			
	Firm A	Firm B	Firm C
Variable Costs	\$2.00	\$2.60	\$2.40
Fixed Costs	\$1.00	\$1.30	\$1.40
Interest Expense	\$0.20	\$0.00	\$0.20

Which firm has the *highest* degree of operating leverage (DOL)?

A) Firm C.



B) Firm B.



C) Firm A.



Explanation

The DOL for the three companies is as follows:

$$\text{DOL} = (\text{Total Revenue} - \text{Total Variable Costs}) / (\text{TR} - \text{TVC} - \text{Total Fixed Costs})$$

$$\text{Firm A: } (\$4.00 - \$2.00) / (\$4.00 - \$2.00 - \$1.00) = 2$$

$$\text{Firm B: } (\$4.00 - \$2.60) / (\$4.00 - \$2.60 - \$1.30) = 14$$

$$\text{Firm C: } (\$4.00 - \$2.40) / (\$4.00 - \$2.40 - \$1.40) = 8$$

(Note: Interest expense does not affect operating leverage.)

(Study Session 11, Module 36.1, LOS 36.b)

Question #35 of 39

The following information reflects the projected operating results for Opstalan, a catalog printer.

- Sales of \$5.0 million.
- Variable Costs at 40% of sales.
- Fixed Costs of \$1.0 million.
- Debt interest payments on \$1.5 million issued with an annual 7.0% coupon (current yield is 8.0%).
- Tax Rate of 0.0%.

Opstalan's degree of total leverage (DTL) is *closest* to:

A) 2.58.



B) 1.41.



C) 1.59.



Explanation

First, calculate the operating results:

Opstalan Annual Operating Results

Sales	\$5,000,000
Variable Costs ¹	<u>2,000,000</u>
	3,000,000
Fixed Costs	<u>1,000,000</u>
EBIT	<u>2,000,000</u>
Interest Expense ²	<u>105,000</u>
	1,895,000

¹Variable costs = $0.40 \times 5,000,000$

²Interest Expense = $0.07 \times 1,500,000$

Second, calculate $DOL = (Sales - Variable Costs) / (Sales - Variable Costs - Fixed Costs) = 3,000,000 / 2,000,000 = 1.50$

Third, calculate $DFL = EBIT / (EBIT - I) = 2,000,000 / 1,895,000 = 1.06$.

Finally, calculate $DTL = DOL \times DFL = 1.50 \times 1.06 = 1.59$.

(Study Session 11, Module 36.1, LOS 36.b)

Question #36 of 39

Annual fixed costs at King Mattress amount to \$325,000. The variable cost of raw materials and labor is \$120 for the typical mattress. Sales prices for mattresses average \$160. How many units must King Mattress sell to break even?

A) 8,125.



B) 40.



C) 2,708.



Explanation

$Q_{\text{Breakeven}} = \text{Fixed Cost} / (\text{Price} - \text{Variable Cost})$

$Q_{\text{Breakeven}} = \$325,000 / (160 - 120) = 8,125$

(Study Session 11, Module 36.1, LOS 36.d)

Question #37 of 39

Which of the following statements about leverage is *most* accurate?

A) An increase in fixed costs (holding sales and variable costs constant) will reduce the company's degree of operating leverage.



B) If the company has no debt outstanding, then its degree of total leverage equals its degree of operating leverage.



C) A decrease in interest expense will increase the company's degree of total leverage.



Explanation

If debt = 0 then DFL = 1 because $DFL = EBIT / (EBIT - I)$

If debt = 0 then $I = 0$ and $DFL = EBIT / (EBIT - 0) = EBIT / EBIT = 1$

$DTL = (DOL)(DFL)$

If DFL = 1 then $DTL = (DOL)(1)$ which complies to $DTL = DOL$

A decrease in interest expense will decrease DFL, which will decrease DTL. An increase in fixed costs will increase the company's DOL.

(Study Session 11, Module 36.1, LOS 36.b)

Question #38 of 39

Stromburg Corporation's sales are \$75,000,000. Fixed costs, including research and development, are \$40,000,000, while variable costs amount to 30% of sales. Stromburg plans an expansion which will generate additional fixed costs of \$15,000,000, decrease variable costs to 25% of sales, and permit sales to increase to \$100,000,000. What is Stromburg's degree of operating leverage at the new projected sales level?

A) 3.75.



B) 4.20.



C) 3.50.



Explanation

Sales = \$100,000,000

VC of 25% of sales = 25,000,000

FC of 40,000,000 + 15,000,000 = 55,000,000

$DOL = [100,000,000 - 25,000,000] / [100,000,000 - 25,000,000 - 55,000,000] = 3.75$

(Study Session 11, Module 36.1, LOS 36.b)

Question #39 of 39

A firm expects to produce 200,000 units of flour that can be sold for \$3.00 per bag. The variable costs per unit are \$2.00, the fixed costs are \$75,000, and interest expense is \$25,000. The degree of operating leverage (DOL) and the degree of total leverage (DTL) is *closest* to:

DOL

DTL

A) 1.6

1.3



B) 1.3

1.3



C) 1.6

2.0



Explanation

$$\text{DOL} = Q(P - V) / [Q(P - V) - F]$$

$$\text{DOL} = 200,000 (3 - 2) / [200,000(3 - 2) - 75,000] = 1.6$$

$$\text{DTL} = [Q(P - V) / Q(P - V) - F - I]$$

$$\text{DTL} = 200,000 (3 - 2) / [200,000 (3 - 2) - 75,000 - 25,000] = 2$$

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