

# Business Calculations



# FBLA High School Competitive Events Guidelines

2022–2023

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# Objective Test Events

## Overview

These events consist of a 60-minute test administered during the National Leadership Conference (NLC).

### ELIGIBILITY

Each state may submit four entries. Competitors must have paid FBLA national and state dues by 11:59 p.m. Eastern Time on March 1 of the current school year. These events are for individual competitors only.

### NLC Registration

Participants must be registered for the NLC and pay the national conference registration fee to participate in competitive events.

Accounting I  
Accounting II  
Advertising  
Agribusiness  
Business Calculations  
Business Communication  
Business Law  
Computer Problem Solving  
Cyber Security  
Economics  
Health Care Administration  
Human Resource Management  
Insurance & Risk Management  
Introduction to Business Communication  
Introduction to Business Concepts  
Introduction to Business Procedures  
Introduction to FBLA  
Introduction to Financial Math  
Introduction to Information Technology  
Introduction to Marketing Concepts – **NEW**  
Introduction to Parliamentary Procedure  
Journalism  
Networking Infrastructures  
Organizational Leadership  
Personal Finance  
Political Science  
Securities & Investments  
Supply Chain Management  
UX Design

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## Business Calculations

### Objective Test Competencies

- Consumer credit
- Mark-up and discounts
- Data analysis and reporting
- Payroll
- Interest rates
- Investments
- Taxes
- Bank records
- Insurance
- Ratios and proportions
- Depreciation
- Inventory

### Objective Test Guidelines

- No materials may be brought to the testing site.
- No calculators may be brought into the testing site; calculators will be provided.
- Electronic devices must be turned off and out of sight.
- Bring a writing instrument.

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<b>Competency A: Consumer Credit</b>	<b>Minimum: 15</b>
<b>Tasks</b>	
1. Identify the costs, benefits, and sources of various types of credit	
2. Calculate sales tax and compute total price with sales tax	
3. Compute total purchase price with interest/finance charges added	
4. Compute the costs involved in owning and buying an item such as an automobile, appliances, home, or furniture	
5. Compute finance charges for single payment loans	
6. Calculate installment loan costs such as amount financed, installment price, finance charge, and installment payment	
7. Find the estimated annual percentage rate (APR) using a table	
8. Compare costs of leasing and buying	
9. Find the finance charge and new balance using the average daily balance method	
10. Read amortization tables to determine payment, interest and balance	
11. Compute Annual and monthly Percentage Rate for credit cards or loan	
12. Find the monthly mortgage payment	
13. Find the total interest on a mortgage and the PITI	
14. Prepare a partial amortization schedule of a mortgage	
15. Compare the total interest paid on a 15-year and 30-year fixed rate mortgage	
16. Define and compare the interest only, fixed rate, and adjustable rate loans	
<b>Competency B: Data Analysis and Reporting</b>	<b>Minimum: 10</b>
<b>Tasks</b>	
1. Using a data set, determine mean, median, and mode	
2. Distinguish between a simple average and a weighted average and calculate each	
3. Identify and construct various types of graphs and charts	
4. Compile and arrange facts in organized manner for a table, chart, or figure	
5. Explain or prepare written summary of findings expressed in tables, charts, graphs and figures	
6. Make predictions and decisions based on data and communicate their reasoning	
7. Explain the usage of statistics, probability, and systems of measurement in business	
<b>Competency C: Interest Rates</b>	<b>Minimum: 10</b>
<b>Tasks</b>	
1. Figure rates, interest, and proceeds of bank discounts	
2. Calculate simple interest using the simple interest formula	
3. Calculate any single variable—principal, interest rate, amount of interest, or time—given the other three	
4. Explain the process of discounting a promissory note and calculate the proceeds of a discounted promissory note	
5. Define maturity value and find the maturity value of a loan	
6. Convert months to a fractional or decimal part of a year	
7. Find the future value and compound interest by compounding manually	
8. Find the interest compounded daily using a table	

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<b>Competency D: Mark-ups and Discounts</b>	<b>Minimum: 10</b>
<b>Tasks</b>	
1. Identify the various types of discounts	
2. Calculate chain, trade, and cash discounts and net selling price of each kind of discount	
3. Determine price of product after coupons and/or rebates	
4. Define and calculate markup and markdown	
5. Determine the rate of the markup or markdown	
6. Find the cost, markup or selling price when any two of the three are known	
7. Find the amount of markdown, the reduced price and the percent of markdown of an item	
8. Calculate markup based on cost	
9. Calculate markup based on selling price	
10. Convert markups from cost to selling price or from selling price to costs	
<b>Competency E: Payroll</b>	<b>Minimum: 10</b>
<b>Tasks</b>	
1. Calculate pay based on piecework, salary, commissions, and graduated commissions	
2. Calculate gross pay based on an hourly wage with an overtime policy	
3. Calculate an employee's net earnings per paycheck	
4. Prepare an individual payroll or earnings record	
5. Find federal tax withholding per paycheck using IRS tax tables and IRS percentage method	
6. Calculate Social Security Tax and Medicare tax per paycheck	
7. Find an employer's total deposit for withholding tax, social security tax, and Medicare tax per pay period and quarterly	
8. Calculate federal and state unemployment taxes	
9. Compute business expenses related to employees: benefits, disability insurance, travel, and employee training	
<b>Competency F: Investments</b>	<b>Minimum: 8</b>
<b>Tasks</b>	
1. Define investment terms such as risk, yields, P/E ratio, and rate of return	
2. Explain the effect compounding has in an investment and lending environment	
3. Compare investment decisions and make mathematical comparisons of investment alternatives	
4. Calculate the net present value of an investment such as certificate of deposit, savings account, stocks, and mutual funds	
5. Determine stock yield, earnings per share, and price-earnings ratio	
6. Compute the anticipated rate of return on specific investments and savings accounts using various factors such as simple or compound interest, dividends, fees, etc	

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<b>Competency G: Taxes</b>	<b>Minimum: 8</b>
<b>Tasks</b>	
1. Define tax terms such as standard deduction, itemized deductions, exemptions, and various types of taxes such as income tax, sales tax, and property tax	
2. Define and calculate property taxes based on local percentages/guidelines	
3. Calculate sales tax on purchase	
4. Complete a 1040 EZ Federal Income Tax Form with a W2 form	
5. Prepare a 1040 A using W2 and 1099 Interest form	
6. Complete basic tax forms such as W2 and W4	
<b>Competency H: Bank Records</b>	<b>Minimum: 7</b>
<b>Tasks</b>	
1. Compare different types of banking options such as credit unions and other banks	
2. Identify the types of banking services and their costs for meeting various needs	
3. Write a check, prepare deposits, and prepare withdrawal slips	
4. Maintain a check register including proper procedures for ATM and automatic payment withdrawals	
5. Reconcile a bank statement	
6. Utilize online banking and bill payment options securely	
<b>Competency I: Insurance</b>	<b>Minimum: 7</b>
<b>Tasks</b>	
1. Identify and compare types of insurance	
2. Read insurance premium charts and determine the cost of a particular policy	
3. Analyze insurance proposal for auto and determine costs of compulsory insurance and costs of optional coverage	
4. Analyze health insurance premiums and calculate based on selected options	
5. Compute the costs and benefits of specific insurance plans	
6. analyze deductibles and their effect on policy	
<b>Competency J: Depreciation</b>	<b>Minimum: 5</b>
<b>Tasks</b>	
1. Distinguish between straight-line method, declining balance method, sum of the year's digits method, and MACRS method	
2. Determine straight-line depreciation for a year	
3. Determine the depreciation expense on plant assets by the sum of the year's digits and declining balance	
4. Determine modified accelerated cost recovery system depreciation	
5. Use the straight-line depreciation method to find the value of an asset	
<b>Competency K: Inventory</b>	<b>Minimum: 5</b>
<b>Tasks</b>	
1. Determine the cost and value of inventory	
2. Determine rate of inventory turnover	
3. Determine the value of ending inventory using Average Cost (weighted average), FIFO, and LIFO	

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Competency L: Ratios and Proportions	Minimum: 5
<b>Tasks</b>	
1. Define the terms ratio and proportion	
2. Use ratios to evaluate profitability, efficiency, and leverage	
3. Create ratios to express the quantitative relationship between two amounts	
4. Use ratios, proportions, and percents to solve problems involving financial calculations	
5. Analyze and explain methods for solving problems involving proportions such as scaling and finding equivalent ratios	

## FBLA Business Calculations

### References:

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*The Illinois Learning Standards for Mathematics.* 1998. Illinois Department of Education. Springfield, IL.

*Business Computer Mathematics Course Outline.* 2003. South Carolina Career and Technology, South Carolina Department of Education. Columbia, SC.

*Career Cluster Resources for Marketing, Sales & Service.* 2003. National Association of State Directors of Career Technical Education Consortium. Washington, DC.

*Career Cluster Resources for Business, Management and Administration.* 2003  
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*Career Cluster Resources for Finance.* 2003. National Association of State Directors of Career Technical Education Consortium. Washington, DC.

*Kentucky Occupational Skill Standards List.* 2007. Career and Technical Education. KY Department of Education. Frankfort, KY.

Cleaves, Cheryl and Margie Hobbs. *Business Math*, 8<sup>th</sup> edition. 2009. Prentice Hall. Upper Saddle River, NJ.

*Missouri Personal Finance Competencies.* 2005. Missouri Center for Career Education. Warrensburg, MO.

*National Standards in K-12 Personal Finance Education*, Third Edition, 2007. The Jump\$tart Coalition for Personal Financial Literacy. Washington, DC.



## BUSINESS CALCULATIONS SAMPLE QUESTIONS

- 1) Zachary purchased a set of dishes at the department store at a discount for \$600 at 12 percent annual interest. He made a single, in-full payment when the statement came in at the end of the month. What is the total cost of the dish set if there is no grace period for repayment?
  - A) \$660
  - B) \$600
  - C) \$606
  - D) \$650
  
- 2) Aidan purchased a house for \$375,000. He put \$80,000 down on the house. Total finance charges over the course of the 15-year loan equal \$283,435. What was Aidan's monthly payment?
  - A) \$3,421.94
  - B) \$3,856.23
  - C) \$4,123.62
  - D) \$3,213.53
  
- 3) Determine the mode of the following: 9, 3, 1, 8, 3, 6
  - A) 5
  - B) 8
  - C) 3
  - D) 4.5
  
- 4) \_\_\_ is the process of arriving at conclusions based on quantitative data.
  - A) Statistical inference
  - B) Qualitative analysis
  - C) Statistical analysis
  - D) Inscriptive statistics
  
- 5) The \_\_\_ is a document that states the details of a loan.
  - A) deed
  - B) mortgage
  - C) promissory note
  - D) agent

- 6) Emily borrowed \$1,200 from a friend at 8% simple interest (calculated yearly). Calculate how much will she pay in interest at the end of 3 years if she does **not** make any payments.
- A) \$275.00
  - B) \$308.14
  - C) \$288.00
  - D) \$311.65
- 7) A term used when a vendor offers a buyer more than one discount.
- A) chain discount
  - B) bulk discount
  - C) linked discount
  - D) wholesale discount
- 8) Mark earns .42 cents for each mile he drives. If he drives 65 miles per hour, calculate how much he will earn after working 240 hours this month.
- A) \$7,310
  - B) \$5,975
  - C) \$6,552
  - D) \$3,430
- 9) Roberto invested \$15,000 in a bond with a total yield of 2.5 percent. Calculate the maturity value after one year.
- A) \$375
  - B) \$15,890
  - C) \$15,375
  - D) \$890
- 10) Identify which act of legislation protects consumers when making personal consumer loans.
- A) Wilson Act
  - B) Truth-in-Lending Act
  - C) Clayton Act
  - D) Smith-Hughes Act

- 11) David wrote fifteen checks totaling \$1,843.98 and deposited one check for \$814.12 during the month. The beginning checking account balance was \$1,418.63. David's bank adds a surcharge of \$0.50 per check written after the first 10 during the month. What is the ending balance of David's checking account?
- A) \$238.87
  - B) \$278.63
  - C) \$368.72
  - D) \$386.27
- 12) Calculate the monthly cost of a \$2,500,000 hazard insurance policy annual premium if the rate is \$6.92 per thousand.
- A) \$14,500.00
  - B) \$1,441.66
  - C) \$1,220.33
  - D) \$17,300.00
- 13) Victory Screen Printing purchases a large color printer for \$3,000 on January 1. The business anticipates that the large color printer will be useful for five years. At the end of five years, Victory Screen Printing expects to sell the machine for \$500. What is the annual amount of depreciation?
- A) \$500
  - B) \$1,400
  - C) \$2,800
  - D) \$1,000
- 14) Pop's restaurant has the following food inventory: 8 cases of hamburger patties that cost \$65 each, 20 soft drink dispensers that cost \$35 each, 60 units of frozen food that cost \$80 per unit, 11 boxes of condiments worth \$15 per box, 8 cases of utensils worth \$35 each, and 6 cases of other paper goods worth \$38 per case. The value of Popo's inventory is \_\_\_\_\_.
- A) \$5,693
  - B) \$6,500
  - C) \$6,693
  - D) \$7,693
- 15) A comparison of one amount to another is referred to as a(n) \_\_\_\_\_.
- A) ratio
  - B) equation
  - C) proportion
  - D) fraction

- 1) C
- 2) D
- 3) C
- 4) A
- 5) C
- 6) C
- 7) A
- 8) C
- 9) C
- 10) B
- 11) D
- 12) B
- 13) A
- 14) C
- 15) A

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# General Competitive Events Guidelines

The general event guidelines below are applicable to all FBLA High School national competitive events. Please review and follow these guidelines when competing at the national level. When competing at the state level, check the state guidelines since they may differ.

**All members and advisers are responsible for reading and following competitive event guidelines.**

## Eligibility

- **Dues:** Competitors must have paid FBLA national and state dues by 11:59 p.m. Eastern Time on March 1 of the current school year.
- **NLC Registration:** Participants must be registered for the NLC and pay the national conference registration fee in order to participate in competitive events.
- **Deadlines:** The state chair, or designee, must register each state competitor on the official online entry forms by 11:59 p.m. Eastern Time on the second Tuesday in May.
- Each state may submit four entries in all events.
- Each competitor can only compete in one individual/team event and one chapter event.
- Each competitor must compete in all parts of an event for award eligibility.
- A team shall consist of two or three members. The exception is Parliamentary Procedure, which must be a team of four or five members.
- All members of a team must consist of individuals from the same chapter.
- If competitors are late for a competitive event, there are no guarantees they will get to compete. Competitive event schedules cannot be changed. **PLEASE NOTE** that competitive events start in the morning before the opening session of NLC.
- Competitors may be disqualified if they violate competitive event guidelines.
- Picture identification (drivers' license, passport, state-issued identification, or school-issued identification) is required when checking in for competitive events.

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# General Competitive Events Guidelines

## Repeat Competitors

- **Members** may compete in an event at NLC more than once if they have not previously placed in the top ten of that event at NLC. If a member places in the top ten of an event at NLC, they are no longer eligible to compete in that event. This eliminates the exceptions for team events that were previously in place, as this change will now affect all events.
- **Modified Events:** A competitor may compete in the same event when the event is modified, regardless of placement at a National Leadership Conference. Note, if the only modification is a name change, competitors may not compete in the renamed event if they have previously placed in the top ten at the National Leadership Conference.
- **Chapter Events:** Competitors may compete in a chapter event as many times as they wish, regardless of placement at a previous National Leadership Conference (American Enterprise Project, Community Service Project, Local Chapter Annual Business Report, and Partnership with Business Project).
- **Pilot Event:** Competition in a pilot event does not disqualify a competitor from competing in the same event if it becomes an official competitive event. The participant may compete in another event as well as a pilot event.

## Breaking Ties

- **Objective Tests:** Ties are broken by comparing the correct number of answers to the last 10 questions on the exam. If a tie remains, the competitor who completed the test in a shorter amount of time will place higher. If this does not break the tie, answers to the last 20 questions will be reviewed to determine the winner.
- **Objective and Production Tests:** The production test scores will be used to break a tie.
- **Objective Tests and Performances:** The objective test score will be used to break a tie based on the tie-breaking criteria of objective tests.
- **Reports/Projects and Performances:** The report/project scores will be used to break a tie.
- **Performances:** Judges must break ties and all judges' decisions are final.

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# General Competitive Events Guidelines

## National Deadlines

- State chair/adviser must register all competitors for NLC competitive events online by 11:59 p.m. Eastern Time on the second Tuesday in May.
- All prejudged components (reports and projects) must be submitted by 11:59 p.m. Eastern Time on the second Tuesday in May.
- All prejudged projects and reports must be submitted electronically.
- All production tests must be submitted by 11:59 p.m. Eastern Time on the third Tuesday in May.
- All production tests must be uploaded online on the required platform.
- State chair/adviser may make name changes only (no additional entries) by 11:59 p.m. Eastern Time on the first Tuesday in June. Competitor drops are the only changes allowed after this date and onsite.

## National Awards

- The number of competitors will determine the number of winners. The maximum number of winners for each competitive event is 10.

## Americans With Disabilities Act (ADA)

- FBLA-PBL meets the criteria specified in the Americans with Disabilities Act for all participants who [submit an accommodation form](#).
- The form must be submitted by 11:59 p.m. Eastern Time on the second Tuesday in May.

## Recording of Presentations

- No unauthorized audio or video recording devices will be allowed in any competitive event. Participants in the performance events should be aware the national association reserves the right to record any performance for use in study or training materials.