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## INTRODUCTION TO FINANCIAL MATH

### Overview

The ability to solve common financial and business mathematical problems is a basic skill required by all prospective business employees. This event provides recognition for FBLA members who have an understanding of basic math functions needed in finance and business.

This event is an individual objective test and only for members in grades 9 and 10.

### Competencies and Task Lists

<http://www.fbla-pbl.org/competitive-event/introduction-to-financial-math/>

### Website Resources

- Markup  
[http://www.321know.com/g84\\_max1.htm](http://www.321know.com/g84_max1.htm)
- Meters and Liters: Converting to the Metric System of Measurements  
[http://www.learner.org/interactives/dailymath/meters\\_liters.html](http://www.learner.org/interactives/dailymath/meters_liters.html)
- The Metrics International System of Units  
<http://www.wsdot.wa.gov/reference/metrics/factors.htm>
- Top 6 Business Math Resources  
<http://math.about.com/od/businessmath/tp/businessmath.htm>

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## INTRODUCTION TO FINANCIAL MATH SAMPLE QUESTIONS

- 1) During the winter quarter, the student dining service sells an average of 325 portions of hot chocolate per day. The hot chocolate mix comes in containers of 130 oz. each. A serving requires 4 oz. of mix. How many containers are used on an average day?
- A)  $6 \frac{1}{4}$
  - B)  $2 \frac{1}{2}$
  - C) 10
  - D) 20

**Competency:** Basic Math Concepts

- 2) Approximate sales are \$35,000; approximate costs of goods sold are \$6,500; warranty expenses are approximately \$3,500; salaries are exactly \$15,125; and taxes paid are exactly \$1,125. What is the profit?
- A) approximately \$15,250
  - B) approximately \$8,750
  - C) exactly \$15,250
  - D) exactly \$8,750

**Competency:** Basic Math Concepts

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- 3) To prove that the multiplication is correct, you would:
- A) divide the quotient by one of the multipliers
  - B) multiply the product by one of the multipliers
  - C) divide the product by one of the multipliers
  - D) multiply the quotient by one of the multipliers

**Competency:** Basic Math Concepts

- 4) What is the inverse operation of division?
- A) conversion
  - B) multiplication
  - C) subtraction
  - D) addition

**Competency:** Basic Math Concepts

- 5) One-third of two thousand five hundred seventy is approximately:
- A) 750
  - B) 860
  - C) 800
  - D) 900

**Competency:** Basic Math Concepts

- 6) Area is measured in:
- A) square units
  - B) meters
  - C) inches
  - D) miles

**Competency:** Basic Math Concepts

- 7) A promissory note is:
- A) your written promise to pay back a loan
  - B) an invoice
  - C) like a check
  - D) a gift

**Competency:** Consumer Credit

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- 8) Andrew bought a car for \$2,500 for cash. He expects annual costs to operate the car to be \$650 every six months for insurance and \$200 per month for upkeep and maintenance. He will get 25 miles per gallon and drive 1,000 miles each month. Gas is \$4/gal. What should his total operating expenses be for the first year?
- A) \$4,970
  - B) \$4,320
  - C) \$1,920
  - D) \$5,620

**Competency:** Consumer Credit

- 9) Angela is getting married in a year. She wants to buy her dress with monthly payments of \$150 per month for a year. If the total of the finance charges is \$400, what is the price of the dress?
- A) \$2,200
  - B) \$1,650
  - C) \$1,400
  - D) \$1,800

**Competency:** Consumer Credit

- 10) Joann purchased a used automobile for \$1,500. Southwest Banks finances the car for one year at 12.5%. Compute the total payment at the end of the year.
- A) \$1,587.50
  - B) \$1,687.50
  - C) \$187.50
  - D) \$1,887.50

**Competency:** Consumer Credit

- 11) The installment price on roller blades is \$210. With a \$50 down payment, what is the monthly payment over a 12-month period?
- A) \$17.50
  - B) \$14.40
  - C) \$15.52
  - D) \$13.33

**Competency:** Consumer Credit

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- 12) If the monthly interest rate is .50%, what is the APR?
- A) 5%
  - B) 30%
  - C) .06%
  - D) 6%

**Competency:** Consumer Credit

- 13) The sum of the daily balance for a 30-day month is \$5,325. What is the finance charge if the monthly interest rate is 1.8%?
- A) \$3.20
  - B) \$15.59
  - C) \$19.59
  - D) \$9.59

**Competency:** Consumer Credit

- 14) Given a random distribution of numbers, in order to find the number that has as many other numbers below it as above, you need to determine the:
- A) mean
  - B) median
  - C) equilibrium
  - D) mode

**Competency:** Data Analysis and Probability

- 15) The weighted average method is useful when the cost of inventory:
- A) varies
  - B) cannot be verified
  - C) is static
  - D) is constant

**Competency:** Data Analysis and Probability

- 16) Individual data points can best be displayed by using a:
- A) scatter diagram
  - B) pie chart
  - C) histogram
  - D) bar chart

**Competency:** Data Analysis and Probability

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- 17) The best way to depict a future prediction is by using a:
- A) histogram
  - B) bar chart
  - C) pie chart
  - D) line chart

**Competency:** Data Analysis and Probability

- 18) Depicting data with several categories is done best in a:
- A) table
  - B) line chart
  - C) pie chart
  - D) bar chart

**Competency:** Data Analysis and Probability

- 19)  $(12.5 \times 2.5) / 1.5 =$
- A) 20.833
  - B) 208.33
  - C) 2.0833
  - D) 2083.3

**Competency:** Decimals

- 20) Which one of the following is **not** a type of discount?
- A) trade discount
  - B) cash discount
  - C) chain discount
  - D) credit discount

**Competency:** Discounts

- 21) If the regular price for shoes is \$84.99 and the markdown is \$29.75, what is the percent off?
- A) 37 percent
  - B) 35 percent
  - C) 25 percent
  - D) 40 percent

**Competency:** Discounts



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- 22) Two chairs are shipped from Boston to Los Angeles. Each chair cost \$68.00. Terms were 3/10, 2/20, n/30. Shipping was \$6.18. What is the total amount due if paid within 10 days?
- A) \$131.92
  - B) \$138.10
  - C) \$ 84.18
  - D) \$142.18

**Competency:** Discounts

- 23) A chair has a list price of \$690 and has a trade discount of 30%. What is the cost?
- A) \$620
  - B) \$483
  - C) \$207
  - D) \$669.30

**Competency:** Discounts

- 24) An invoice is for \$250 with terms of 10/10, n/30. If immediately paid upon receipt, what is the amount of the check that will be written?
- A) \$250
  - B) \$275
  - C) \$225
  - D) \$220

**Competency:** Discounts

- 25)  $\frac{3}{4} \times \frac{1}{12} \times \frac{3}{8} \times \frac{2}{9} =$
- A)  $\frac{1}{192}$
  - B)  $\frac{8}{15}$
  - C)  $\frac{1}{3}$
  - D)  $\frac{9}{70}$

**Competency:** Fractions

- 26)  $\frac{9}{5} =$
- A) 1.45
  - B)  $1 \frac{4}{5}$
  - C) 80%
  - D) 2

**Competency:** Fractions

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- 27) When mentally dividing by a fraction, the easiest approach is to:
- A) convert everything into fractions
  - B) invert the fraction and multiply
  - C) convert the fraction to a decimal and divide
  - D) write down the problem and solve

**Competency:** Fractions

- 28) What is 21 percent of \$732?
- A) \$578.28
  - B) \$153.72
  - C) \$286.89
  - D) \$ 15.37

**Competency:** Percentages

- 29) Casey answered 71 out of 80 questions correctly. What percent did he answer incorrectly?
- A) 89 percent
  - B) 15 percent
  - C) 11 percent
  - D) 85 percent

**Competency:** Percentages

- 30) To find the markup, you would:
- A) divide the selling price by the cost
  - B) subtract the selling price from the cost
  - C) add the cost and the selling price
  - D) subtract the cost from the selling price

**Competency:** Percentages

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### Introduction to Financial Math Answer Key

- |       |       |       |
|-------|-------|-------|
| 1) C  | 11) D | 22) B |
| 2) B  | 12) D | 23) B |
| 3) C  | 13) A | 24) C |
| 4) B  | 14) B | 25) A |
| 5) B  | 15) A | 26) B |
| 6) A  | 16) A | 27) B |
| 7) A  | 17) D | 28) B |
| 8) D  | 18) A | 29) C |
| 9) C  | 19) A | 30) D |
| 10) B | 20) D |       |
|       | 21) B |       |

### Introduction to Information Technology Answer Key

- |       |       |       |
|-------|-------|-------|
| 1) A  | 11) B | 22) D |
| 2) B  | 12) A | 23) A |
| 3) A  | 13) D | 24) C |
| 4) D  | 14) D | 25) D |
| 5) A  | 15) D | 26) B |
| 6) C  | 16) D | 27) D |
| 7) A  | 17) D | 28) A |
| 8) B  | 18) A | 29) B |
| 9) C  | 19) A | 30) B |
| 10) D | 20) A |       |
|       | 21) A |       |

### Introduction to Parliamentary Procedure Answer Key

- |       |       |       |
|-------|-------|-------|
| 1) A  | 11) B | 22) B |
| 2) A  | 12) B | 23) A |
| 3) D  | 13) A | 24) C |
| 4) D  | 14) C | 25) B |
| 5) D  | 15) D | 26) B |
| 6) B  | 16) A | 27) D |
| 7) B  | 17) A | 28) B |
| 8) D  | 18) A | 29) B |
| 9) A  | 19) D | 30) C |
| 10) D | 20) D |       |
|       | 21) C |       |



This event provides recognition for FBLA members who have an understanding of basic math functions needed in business.

**This event is only for members in grades 9 and 10.**

### Competencies

The topics listed below are prioritized, listing first the most important content areas of the tests; grouped topics are equal.

- Basic math concepts
- Decimals, discounts, fractions, consumer credit, percentages

### Procedures/Tips

1. Review the guidelines for this event found in the Competitive Events section of the current edition of the Chapter Management Handbook. You should have a copy of the guidelines and review them carefully. This test is only open to FBLA 9<sup>th</sup> and 10<sup>th</sup> grade students. Middle school 9<sup>th</sup> graders are not eligible for this test.
2. Study from both South Western and Glencoe/McGraw Hill textbooks and review vocabulary lists in each book's glossary. FBLA tests are written from different sources. Do not rely solely on school texts for study. Check out library texts to gain a broader range of familiarity. Take as many practice tests as possible.
3. Dress according to the established dress code. If dress code is not followed, participant will be disqualified.
4. Check the location of your test well before the time of competition. Plan to arrive 15 minutes before the scheduled time for the test. Remember the elevators can be slow and hallways crowded.
5. Bring several sharpened No. 2 pencils with erasers. A calculator will be provided.
6. Check the event signs to be certain you are in the correct room or section of the room. More than one event may be tested in one room at the same time.
7. Listen carefully to instructions given by the event administrator. One hour is allowed for the actual test. Carefully read the instructions on the cover page of the test. Pace yourself during the testing to allow time to work quickly but accurately. Try to answer all the questions.
8. Make certain your answers are clearly marked and all stray marks are erased.
9. Turn in your test as soon as you are finished. A tiebreaker is resolved by evaluating the students' performance on the final ten questions of the exam and then by the time.
10. Take pride in your accomplishments and share the excitement of the awards program.

## BUSINESS MATH SAMPLE TEST QUESTIONS

### Multiple Choice

1. Phillip Armbruster has \$600 in his savings account earning 5¼% annual interest. After 12 months, and using the simple interest method, what amount of interest will he have earned?
  - a. \$345.00
  - b. \$ 31.50
  - c. \$ 34.50
  - d. \$315.00
  
2. Quinn LeGrow worked at three jobs in three weeks. In the first week, he earned \$310. In the next week, he was paid \$334. In the third week, he was paid \$307. What average pay per week did Quinn earn for these three weeks?
  - a. \$951
  - b. \$317
  - c. \$978
  - d. \$326
  
3. Sean Weggert's regular time pay rate is \$8.73 an hour. Last week he was paid for 37 regular time hours at his regular rate and for 5 overtime hours at a time and a half overtime rate. Sean's gross pay for the week was
  - a. \$323.01.
  - b. \$ 65.48.
  - c. \$388.49.
  - d. \$368.49.
  
5. When he began working at his first full-time job, Guillermo Valdivia took out a whole life policy for \$42,000. At the end of five years, Guillermo decided to cancel the policy and take the cash value of the policy in paid-up whole life insurance. The amount of paid-up insurance he received from the insurance company was what amount?
  - a. \$ 134.00
  - b. \$5,628.00
  - c. \$ 22.30
  - d. \$ 936.60
  
6. Find the banker's interest to the nearest cent. *Principal: \$2,500; Rate: 9%; Time: 180 days; Interest: ?*
  - a. \$104.32
  - b. \$109.75
  - c. \$112.50
  - d. \$110.96

*In problems 7-8, convert the following percents to decimal values.*

7. 7¾%
  - a. 0.00775
  - b. 7.75
  - c. 0.775
  - d. 0.0775
  
8. 75.3%
  - a. 0.753
  - b. 0.0753
  - c. 7.53
  - d. 0.0753

*Problems 4-5.*

CASH VALUES PER \$1,000 OF INSURANCE		
End of Year	Cash and Loan Values	Paid-up whole life
5	\$22.30	134
10	\$84.34	\$451
15	\$195.76	\$785

4. Lorna Mills took out a life insurance policy for \$7,000. At the end of the tenth year, she turned in the policy for its cash value and received what amount from the insurance company?
  - a. \$134.00
  - b. \$ 22.30
  - c. \$ 84.34
  - d. \$590.38
  
9. \$6.65 is what percent of \$95?
  - a. 14.28%
  - b. 1.42%
  - c. 0.07%
  - d. 7%
  
10. \$14 is what percent of \$175?
  - a. 0.8%
  - b. 8%
  - c. 0.08%
  - d. 80%



Find the quarterly interest for 11-12

11. \$750 at 6%
- a. \$11.25
  - b. \$22.50
  - c. \$10.50
  - d. \$21.00

12. \$400 at 5 ½%
- a. \$10.50
  - b. \$ 5.50
  - c. \$11.00
  - d. \$ 7.50

13. Loretta Patterson deposited \$429 in a new savings account at Henry County Bank and Trust. She made no other deposits or withdrawals. After 6 months, the interest was computed at an annual rate of 6¾%. How much simple interest did her money earn?
- a. \$13.84
  - b. \$14.48
  - c. \$14.38
  - d. \$13.94

For problems 14-16 convert each metric measurement.

14. 4 mm = \_\_\_\_\_ cm
- a. 0.4
  - b. 0.04
  - c. 40
  - d. 400

15. 5.4 m = \_\_\_\_\_ cm
- a. 0.54
  - b. 5400
  - c. 540
  - d. 54

16. 90 decreased by \_\_\_\_\_ = 44.1
- a. 39%
  - b. 51%
  - c. 49%
  - d. 48%

17. One-Stop Building Supply Company pays \$49.94 each for ladders. The company wants a 45% markup on the cost. It should sell each ladder for
- a. \$72.41.
  - b. \$69.92.
  - c. \$22.47.
  - d. \$79.92.

18. \_\_\_\_\_ is 20% more than 50.
- a. 110
  - b. 55
  - c. 60
  - d. 72

19. A college student earned \$246, \$288, \$234, and \$276 over a four-week period. How much must he earn during the fifth week to have average earnings of \$255 for the five weeks?
- a. \$230.00
  - b. \$231.00
  - c. \$232.00
  - d. \$233.00

20. A prize of \$20,000 is to be shared by two winners of a contest in the ratio of 6 to 4. The larger share is worth
- a. \$ 800.
  - b. \$ 1,200.
  - c. \$12,000.
  - d. \$ 8,000.

21. An appliance store sold 360 microwave ovens last year. Of that amount, 3/8 was apartment-sized models. The number of apartment-sized models sold for the year was
- a. 45.
  - b. 120.
  - c. 153.
  - d. 135.

Problems 22-25. Duane McCoy's job pays him \$11.25 per hour for a 40-hour week. He estimates his fringe benefits to be 29% of his yearly wages. His yearly job expenses are estimated to be dues, \$375; uniforms, \$580; commuting costs, \$934.

22. What is Duane's total annual pay?
- a. \$23,400
  - b. \$ 450
  - c. \$11,700
  - d. \$ 5,400

23. What are Duane's total yearly salary and benefits?
- a. \$ 580.50
  - b. \$15,093.00
  - c. \$ 6,966.00
  - d. \$30,186.00

24. What are Duane's total yearly job expenses?
- \$1,998
  - \$1,988
  - \$1,889
  - \$1,898

25. What are Duane's net yearly job benefits?
- \$28,279
  - \$28,297
  - \$28,927
  - \$28,729

26. Magdalena Figueroa's covered medical care bills for a recent illness were \$8,440. Her major medical policy had a coinsurance feature that paid 80% of all covered expenses above a \$400 deductible. The amount paid by the major medical policy was
- \$ 400.
  - \$8,040.
  - \$6,432.
  - \$1,608.

*Problems 27-28. Inez Frisch needed \$2,500 to pay a \$3,200 bill. On August 14, she borrowed the money from her bank and gave the bank a \$2,500 promissory note with 15% interest. She paid the note back in full on December 12 of the same year. Calculate exact interest.*

27. The interest on the note was charged for \_\_\_\_\_ days.
- 102
  - 100
  - 120
  - 110

28. The amount of interest Inez paid was
- \$132.92.
  - \$123.29.
  - \$123.92.
  - \$132.29.

*In problems 29-30 convert from one metric unit of length to another.*

29.  $68.73 \text{ cm} + 6.09 \text{ m} = \underline{\hspace{2cm}} \text{ m}$
- 74.82
  - 6.7773
  - 67.773
  - 7.482

30.  $50000 \text{ mm} + 50 \text{ m} + 100 \text{ cm} = \underline{\hspace{2cm}} \text{ m}$
- 1001
  - 50120
  - 101
  - 10.1

*In problems 31-32 find the missing percents.*

31. 42 is \_\_\_\_\_% of 480
- 8.75
  - 8.57
  - 9
  - 8.25

32. \$9.10 is \_\_\_\_\_% of \$56
- 16.52
  - 17
  - 19
  - 16.25

33. Joe Popoff, a collection agent, collected 90% of a debt of \$5,600 that had been overdue 90 days. This collection rate was 5% more than the average collection rate for that agent. The agent charged 25% commission. What are the net proceeds?
- \$5,510.
  - \$5,040.
  - \$ 252.
  - \$3,780.

34. Main Street Hardware sells paint thinner in gallons and fractions of gallons according to customer needs. On Saturday, the store sold the following quantities of paint thinner in fractions of gallons:  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ ,  $\frac{5}{8}$ , and  $\frac{3}{10}$ . Convert fractions to decimals and then solve to find out how many gallons were sold on Saturday.
- 2.5
  - 2.425
  - 4.225
  - 1.25

35. Rachel Baker bought 500 dresses for Fashion Carousel at \$39.60 each. She sold 300 for \$55.50, 100 at \$54 each, and the remainder at \$48 each. What was the average markup on the 500 dresses?
- 15.90
  - 14.10
  - 14.40
  - 8.40

36. Cindy's Gift Shoppe purchased 8-inch candles at \$9.95 a dozen, less a 25 percent trade discount. If the owner wishes to sell the candles at a 35 percent markup, what should be the selling price of each dozen?
- \$ 7.46
  - \$13.43
  - \$ 8.98
  - \$10.07
37. Convert the fraction to a decimal, then solve to the nearest thousandth.  
 $1/5 + 2/9 + 3/8$
- 0.297
  - 0.797
  - 0.977
  - 0.779
38. Mildred Yost bought two (2) radial tires at \$49.95 each and two (2) seat cushions at \$16.99 each. The sales tax where she lives is 6 percent. What was the total amount of the purchase?
- \$141.91
  - \$ 99.90
  - \$ 33.98
  - \$133.88
39. At the end of the season, Myra Beise purchased golf shoes, originally priced at \$49.95, with a 25 percent discount. Jim Beise purchased tennis shoes, originally priced at \$55, with a 30 percent discount. The sales tax was  $8\frac{1}{4}$  percent. What was the total amount of their purchases?
- \$37.46
  - \$38.50
  - \$75.96
  - \$82.23
40. Mary and Edith Jones operated a supermarket and noticed a decrease in produce sales. Their accountant advised them to discontinue the produce department when sales were below 20 percent of total sales. Sales for the next month were \$11,420, of which, \$2,150 were produce sales. Find the ratio of produce sales to total sales expressed as a percent. Round to the nearest tenth of a percent.
- 14.8%
  - 19.8%
  - 72.2%
  - 18.8%



**Business Math**

	ANSWER		ANSWER		ANSWER		ANSWER
1.	C	11.	A	21.	D	31.	A
2.	B	12.	B	22.	A	32.	D
3.	C	13.	B	23.	D	33.	D
4.	D	14.	A	24.	C	34.	B
5.	B	15.	C	25.	B	35.	B
6.	C	16.	B	26.	C	36.	D
7.	D	17.	A	27.	C	37.	B
8.	A	18.	C	28.	B	38.	A
9.	D	19.	B	29.	B	39.	D
10.	B	20.	C	30.	C	40.	D

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## BUSINESS MATH

### Overview

The ability to solve common business mathematical problems is a basic skill required by all prospective business employees. This event provides recognition for FBLA members who have an understanding of basic math functions needed in business.

This event is an individual objective test and only for members in *grades 9 and 10*.

### Competencies and Task Lists

<http://www.fbla-pbl.org/docs/ct/FBLA/BUSINESSMATH.pdf>

### Website Resources

- How to Calculate Depreciation  
<http://www.assetaide.com/depreciation/calculation.html>
- Markup  
[http://www.321know.com/g84\\_max1.htm](http://www.321know.com/g84_max1.htm)
- Meters and Liters: Converting to the Metric System of Measurements  
[http://www.learner.org/interactives/dailymath/meters\\_liters.html](http://www.learner.org/interactives/dailymath/meters_liters.html)
- The Metrics International System of Units  
<http://www.wsdot.wa.gov/reference/metrics/factors.htm>
- Top 6 Business Math Resources  
<http://math.about.com/od/businessmath/tp/businessmathtp.htm>

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## BUSINESS MATH SAMPLE QUESTIONS

1. Viola has saved \$6690. She paid her college tuition of \$2,988 for the first semester using her savings. What is Viola's savings account balance?
  - a. \$3,002
  - b. \$3,702
  - c. \$3,007
  - d. \$3,072

**Competency:** Basic Math Concepts

2. Multiply \$71.21 by 10.25 yields a value of:
  - a. \$792.90
  - b. \$729.90
  - c. \$722.89
  - d. \$799.90

**Competency:** Basic Math Concepts

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3. A weekly payroll register shows that Sarah Barnskey had total wages of \$251.25. She had deductions of \$21.00 for FICA tax, \$32 for federal income tax, and \$20 for medical insurance. Compute Sarah's net pay.
- \$117.08
  - \$178.25
  - \$170.08
  - \$107.08

**Competency:** Basic Math Concepts

4. The difference between the subtrahend 34 and the minuend 87 is:
- positive 35
  - positive 53
  - negative 35
  - negative 53

**Competency:** Basic Math Concepts

5. The product of multiplier .13 and multiplicand 7.0905 is:
- .921765
  - 1.821765
  - 1.921765
  - 1.192176

**Competency:** Basic Math Concepts

6. The quotient 13 can be achieved with the:
- divisor 79 and dividend 6
  - divisor 6 and dividend 78
  - divisor 7 and dividend 69
  - divisor 9 and dividend 77

**Competency:** Basic Math Concepts

7. Is  $\frac{4}{4}$  less than, greater than, equal to, or not equal to 1.
- not equal
  - less than
  - greater than
  - equal to

**Competency:** Basic Math Concepts

8. If the monthly interest rate is 3 percent, what is the APR?
- 36 percent
  - 10 percent
  - 15 percent
  - 30 percent

**Competency:** Consumer Credit



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9. The sales tax is 5.5 percent. Compute the sales tax on \$325.
- a. \$10.70
  - b. \$178
  - c. \$17.88
  - d. \$1.78

**Competency:** Consumer Credit

10. Calculate simple interest on a principal of \$1,525 at 19.5 percent at the end of the year.
- a. \$29.73
  - b. \$297.38
  - c. \$2,973.80
  - d. \$2,777

**Competency:** Consumer Credit

11. The sales tax is 3 percent. Compute the sales tax on \$690.
- a. \$2.70
  - b. \$20.70
  - c. \$270
  - d. \$207

**Competency:** Consumer Credit

12. Joann purchased a used automobile for \$1,500. Southwest Banks finances the car for one year at 12.5 percent. Compute the total payment at the end of the year.
- a. \$187.50
  - b. \$1,587.50
  - c. \$1,887.50
  - d. \$1,687.50

**Competency:** Consumer Credit

13. Find the mode of 0,1,2,2,3,4,4,8,2.
- a. 2.5
  - b. 4
  - c. 3
  - d. 2

**Competency:** Consumer Credit

14. The weighted average for the data set.
- |                       |   |   |   |   |   |
|-----------------------|---|---|---|---|---|
| Scores                | 4 | 9 | 6 | 8 | 1 |
| Number of occurrences | 4 | 2 | 6 | 1 | 1 |
- a. 5.64
  - b. 3.93
  - c. 5
  - d. 12

**Competency:** Data Analysis and Probability

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15. Determine the average of the 2, 5, 7, 10.

- a. 5
- b. 6
- c. 10
- d. 7

**Competency:** Data Analysis and Probability

16. Round 4888.262 to the nearest hundredth.

- a. 488
- b. 488.26
- c. 500
- d. 4888.26

**Competency:** Decimals

17. Multiply  $4.2 \times 2.2$ .

- a. 12
- b. 7.24
- c. 20
- d. 9.24

**Competency:** Decimals

18. Mary found an old piggy bank. 4 twenty dollar bills, 7 ones, and 90 pennies were in the piggy bank. How much currency did Mary have?

- a. \$89.00
- b. \$47.00
- c. \$87.90
- d. \$80.70

**Competency:** Decimals

19. Sue received a 30 percent discount on a blouse retailed for \$79.00. What is the sale price of the blouse?

- a. \$5.30
- b. \$55.30
- c. \$59.99
- d. \$69.99

**Competency:** Discounts

20. Jake's printing gives its customers a series of chain discounts including 15 percent, 5 percent, and 5 percent. Calculate the net selling price on printing orders of \$900.

- a. \$690.41
- b. \$6,600
- c. \$69.41
- d. \$6,006

**Competency:** Discounts



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21. Bob received a 10 percent discount on a shirt retailed for \$49.99, how much was Bob's discount?

- a. \$20.00
- b. \$5.00
- c. \$30.00
- d. \$10.00

**Competency:** Discounts

22. Bob received a 10 percent discount on a shirt retailed for \$49.99. What is the sale price of the shirt?

- a. \$19.99
- b. \$29.99
- c. \$39.99
- d. \$44.99

**Competency:** Discounts

23. Subtract  $\frac{1}{4}$  from 12.

- a. 15
- b. 5
- c.  $8\frac{3}{4}$
- d. 11.75

**Competency:** Fractions

24. Divide  $\frac{1}{2}$  by  $\frac{1}{4}$ .

- a. 6
- b. 2
- c. 8
- d. 4

**Competency:** Fractions

25. Convert  $\frac{1}{2}$  to a decimal.

- a. .5
- b. .50
- c. 10
- d. .20

**Competency:** Fractions

26. Convert  $\frac{14}{7}$  to a whole number.

- a. 2
- b. 20
- c. 7
- d. 14

**Competency:** Fractions

- 
27. Dawn made a \$10,000 down payment on a home financed at 8 percent. What is the cost of the home?
- a. \$85,000
  - b. \$125,000
  - c. \$80,000
  - d. \$8,000

**Competency:** Percentages

28. Fourth of July decorations were marked down 20 percent. What is the cost of decorations that originally sold for \$100.00.
- a. \$20.00
  - b. \$8.00
  - c. \$25.00
  - d. \$80.00

**Competency:** Percentages

29. The total sales of Max's Guitar Store were \$40,000. Twenty percent comes from the sale of guitar supplies. What amount does Max's Guitar Store collect from guitar supplies?
- a. \$80
  - b. \$8,000
  - c. \$8,500
  - d. \$800

**Competency:** Percentages

30. Maggie's Coffee Shop makes \$2000 in sales from Vanilla Mochas from the total coffee sales of \$4000. What percent of Vanilla Mochas are of Maggie's Coffee Shop total sales?
- a. 20 percent
  - b. 25 percent
  - c. 37 percent
  - d. 50 percent

**Competency:** Percentages

**Business Math Answer Key**

1)	B	11)	B	21)	B
2)	B	12)	D	22)	D
3)	B	13)	D	23)	D
4)	B	14)	A	24)	B
5)	A	15)	B	25)	B
6)	B	16)	D	26)	A
7)	D	17)	D	27)	B
8)	A	18)	C	28)	D
9)	C	19)	B	29)	B
10)	B	20)	A	30)	D

**Overview**

The ability to solve common business mathematical problems is a basic skill needed by all prospective business employees. This event provides recognition for FBLA members who have an understanding of basic math functions needed in business.

This event is an objective test and only for members in grades 9 and 10.

**Competencies and Task Lists**

<http://www.fbla-pbl.org/docs/ct/FBLA/BUSINESSMATH.pdf>

**Web Site Resources**

- How to Calculate Depreciation  
<http://www.assetaide.com/depreciation/calculation.html>
- Markup  
[http://www.321know.com/g84\\_max1.htm](http://www.321know.com/g84_max1.htm)
- Meters and Liters: Converting to the Metric System of Measurements  
[http://www.learner.org/interactives/dailymath/meters\\_liters.html](http://www.learner.org/interactives/dailymath/meters_liters.html)
- The Metrics International System of Units  
<http://www.wsdot.wa.gov/reference/metrics/factors.htm>
- Top 6 Business Math Resources  
<http://math.about.com/od/businessmath/tp/businessmathtp.htm>

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**BUSINESS MATH SAMPLE QUESTIONS**

1. 27 cubic feet is equal to how many cubic yards?
  - a. 3 cubic yards
  - b. 2.3 cubic yards
  - c. 9 cubic yards
  - d. 1 cubic yard
  
2. Which one of these is the most reasonable estimate of how long it would take an adult to walk five miles?
  - a. 1.5 hours
  - b. 5 hours
  - c. 25 minutes
  - d. 2 hours
  
3. What is the total cost including shipping and handling for a \$20.15 order with a rate of 10 percent and minimum charge of 3.00?
  - a. \$22.20
  - b. \$24.15
  - c. \$25.35
  - d. \$23.15
  
4. A dress selling for \$45 was reduced by \$9. By what percent was the item discounted?
  - a. 20 percent
  - b. 22 percent
  - c. 36 percent
  - d. 5 percent



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5. A bicycle has been marked down by 40 percent to \$120. What was its original price?
- \$200
  - \$195
  - \$210
  - \$180
6. Phil bought an \$89.95 ski jacket that was discounted 20 percent, \$24.95 ski gloves that were discounted 30 percent, and \$18.49 ski goggles that were discounted 40 percent. Determine the discounted price of the three items.
- \$103.01
  - \$100.52
  - \$91.53
  - \$102.37
7.  $15/25$  is equivalent to:
- $4/5$
  - $3/5$
  - $15/25$  is the lowest equivalent
  - $2/5$
8. If a business grew by 212 percent in one year, what would be the decimal equivalent?
- 21.2
  - 21.20
  - .0212
  - 2.12
9. Carmelita makes \$18.60 an hour when she works overtime. This week her paycheck stub indicates that \$269.70 was earned in overtime. How many overtime hours did she work this week?
- 14 hours
  - 13.5 hours
  - 14.5 hours
  - 15 hours
10. If the monthly rate of interest is 1.75 percent, what would be the annual rate of interest?
- 21 percent
  - 12 percent
  - 17.5 percent
  - 18 percent
11. Katelyn earns 8 percent interest on a certificate of deposit. Her bank statement shows that \$80 has been earned in interest. How much is her certificate now worth?
- \$1,000
  - \$1,080
  - \$1,008
  - \$1,800
12. 35 percent of what amount is \$72?
- \$2,057.15
  - \$250.71
  - \$205.71
  - \$2,057.10



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13. The symbol  $<$  means:
    - a. to round the number
    - b. greater than
    - c. to point to the left
    - d. less than
  
  14. When multiplying any number times zero, the resulting product is *always*:
    - a. a three-digit number
    - b. a two-digit number
    - c. one hundred
    - d. zero
  
  15. When requesting an order of merchandise or materials, the originating document is referred to as a:
    - a. net price
    - b. purchase order
    - c. discount price
    - d. sales invoice
  
  16. The smallest number that can be divided evenly by each original denominator is the:
    - a. least common denominator
    - b. prime number
    - c. most common denominator
    - d. sum of the numerators
  
  17. When homes and other real estate are financed, the installment loans are known as:
    - a. purchase prices
    - b. mortgages
    - c. unsecured loans
    - d. open credit
  
  18. Rename 63 percent as a decimal.
    - a. .0063
    - b. 6.3
    - c. .63
    - d. 63.00
  
  19. Which one of the following is three hundred seventy-three thousandths written in correct decimal format?
    - a. 373,000.00
    - b. .0373
    - c. 0.373
    - d. .30073
  
  20. You found a pair of jeans you would like to purchase. The original price states they are \$70.00, however, the store is offering a 33 percent discount for preferred customers. Since you are vacationing and have never been in that store before, what can you expect to pay for those jeans?
    - a. \$46.90
    - b. \$70.00
    - c. \$23.10
    - d. \$93.10
  
  21. Find the amount of trade discount offered for a purchase of \$7,800 less a 25 percent discount.
    - a. \$19.50
    - b. \$19,500
    - c. \$1,950
    - d. \$195

- 
22. Find the due date of a three-month loan made on April 15.
- July 15
  - June 15
  - July 16
  - August 15
23. Rename  $\frac{3}{8}$  as a decimal.
- 0.375
  - .0375
  - 3.75
  - 37.5
24. Round 2,748 to the nearest hundred.
- 2,800
  - 2,750
  - 2,740
  - 2,700
25. When changing from one unit of measurement to another, a conversion factor is used to:
- multiply one unit of measure to obtain the equivalent of the other unit of measure
  - add to one unit of measure to obtain the equivalent of the other unit of measure
  - divide one unit of measure to obtain the equivalent of the other unit of measure
  - subtract from one unit of measure to obtain the equivalent of the other unit of measure
26. In statistics, the word "mean" is:
- the ordinary arithmetic average
  - of no value
  - the middle number in a series of numbers
  - the most frequent number in a listed series of numbers
27. A landscaper needs several pieces of tubing to irrigate a lawn. Each piece must be 6 ft. 8 in. in length. If he buys a 20 ft. long tube, how many pieces of the needed length can he cut?
- 3
  - $3\frac{1}{3}$
  - 30
  - 4
28. Jay's Hardware & Supplies buys 1,000 6 oz. jars for 3.5 cents each and 2,000 10 oz. jars for 5.5 cents each. What is the total cost for the jars?
- \$110.00
  - \$145.00
  - \$1,450.00
  - \$35.00
29. Ying earns \$9.50 per hour. If her weekly gross pay was \$139.65, how many hours did she work?
- 147
  - 14.7
  - \* 68.2
  - 6.8
30. Hugo borrows \$1,000 from his mother and promises to pay her back in one year at 6 percent interest. How much total will Hugo pay back for the loan?
- \$1,160.00
  - \$1016.67
  - \$1,060.00
  - \$166.67

**Business Math Answer Key**

1) D	11) B	21) C
2) D	12) C	22) A
3) D	13) D	23) A
4) A	14) D	24) D
5) A	15) B	25) A
6) B	16) A	26) A
7) B	17) B	27) A
8) D	18) C	28) B
9) C	19) C	29) B
10) A	20) B	30) C

**Overview**

The ability to solve common business mathematical problems is a basic skill needed by all prospective business employees. This event provides recognition for FBLA members who have an understanding of basic math functions needed in business.

*This event is only for members in grades 9 and 10.*

**Competencies**

The topics listed below are prioritized, listing first the most important content areas of the test.

- Basic math concepts
- Decimals
- Fractions
- Percentages
- Discounts
- Consumer credit

**Procedures/Tips**

- Review the Competitive Events Tips in the front of the book.

**Web Site Resources**

- <http://www.assetaide.com/depreciation/calculation.html>
- [http://www.321know.com/g84\\_max1.htm](http://www.321know.com/g84_max1.htm)
- [http://www.learner.org/interactives/dailymath/meters\\_liters.html](http://www.learner.org/interactives/dailymath/meters_liters.html)
- <http://www.wsdot.wa.gov/reference/metrics/factors.htm>
- <http://math.about.com/od/businessmath/tp/businessmathtp.htm>



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## Business Math Sample Questions

- Which of the following 4 numbers is the largest:  $\frac{3}{8}$ , .0375,  $\frac{2}{5}$ , or .25?
  - .0375
  - $\frac{2}{5}$
  - .25
  - $\frac{3}{8}$
- Mr. Brown can buy a digital camera for the cash price of \$299.99 or pay the installment price of \$25 down and \$21.09 a month for 15 months. How much can he save by paying cash for the camera?
  - \$ 8.64
  - \$16.36
  - \$25.95
  - \$41.36
- The swimming pool in your back yard is 15 yards long, 9 yards wide, and 4.5 feet deep. How many cubic feet of water does your swimming pool hold?
  - 607.50 cu. ft.
  - 1,822.50 cu. ft.
  - 67.50 cu. ft.
  - 5,467.50 cu. ft.

Use for the next 3 questions.

Internet traffic on Google is being monitored by their Web master. The total numbers of visitors to the site last week by day are:

Mon. = 37,988

Tues. = 43,905

Wed. = 58,106

Thurs. = 60,561

Fri. = 76,145

- What is the mean of people surfing the Internet for these days?
  - 55,341
  - 50,867
  - 58,789
  - 52,564
- What is the range of these numbers?
  - 37,988
  - 76,145
  - 58,106
  - 38,157
- What is the median of the people surfing the Internet last week?
  - 37,988
  - 60,561
  - 58,106
  - 76,145
- Gerald bought a 25-foot roll of wire. After using  $\frac{2}{3}$  of the roll of wire, how many feet of wire are left unused?
  - $15\frac{2}{3}$
  - $16\frac{2}{3}$
  - $8\frac{1}{3}$
  - $9\frac{1}{3}$

Use for the next 4 questions.

List Price	Trade Discount Rate	Complement	Net Price
\$180.00	20%		
\$65.45			\$44.51

8. Compute the net price for the list price of \$180.00 using the complement of trade discount using the table above.
  - a. \$ 72.00
  - b. \$108.00
  - c. \$144.00
  - d. \$ 36.00
9. Compute the complement trade discount for the list price of \$65.45 in the table above.
  - a. 32%
  - b. 68%
  - c. 14.7%
  - d. 85.3%
10. Compute the trade discount rate for the list price of \$65.45 using the table above.
  - a. 32%
  - b. 14.7%
  - c. 85.3%
  - d. 68%
11. Find the complement of the trade discount rate for the list price of \$180.00 using the table above.
  - a. 80%
  - b. 20%
  - c. 60%
  - d. 40%
12. Find the product of  $1\frac{1}{4}$  and  $1\frac{1}{3}$ .
  - a.  $1\frac{2}{3}$
  - b.  $2\frac{2}{7}$
  - c.  $\frac{3}{5}$
  - d.  $1\frac{1}{12}$
13. Ellen used  $\frac{3}{4}$  dozen sheets of photo paper to print her pictures. How many twelfths is  $\frac{3}{4}$ ?
  - a.  $\frac{5}{12}$
  - b.  $\frac{11}{12}$
  - c.  $\frac{9}{12}$
  - d.  $\frac{7}{12}$
14. Kathy earns \$2,580 a month. She has chosen to save  $\frac{1}{3}$  of her income this year. How much money will Kathy be saving each month?
  - a. \$ 860.00
  - b. \$ 816.00
  - c. \$1,720.00
  - d. \$ 806.00
15. What is the sum of  $\frac{4}{5}$  and  $\frac{2}{3}$ ?
  - a.  $\frac{3}{4}$
  - b.  $2\frac{3}{15}$
  - c.  $\frac{8}{15}$
  - d.  $1\frac{7}{15}$

- 
16. Find the quotient of  $\frac{3}{5}$  divided by  $\frac{1}{2}$ .
- $3\frac{1}{3}$
  - $1\frac{1}{5}$
  - $\frac{3}{10}$
  - 1
17. Find the product of 0.973 and 1.918.
- .01866214
  - 18.66214
  - .1866214
  - 1.866214
18. Trent Dillon was comparing prices for frozen turkeys. A 3 lb. turkey was priced at \$4.92, 5 lb. turkey was priced at \$7.95, 7 lb. turkey at \$10.50, and 9 lb. turkey at \$13.77. Which turkey is the best buy?
- 9 lb. turkey
  - 5 lb. turkey
  - 7 lb. turkey
  - 3 lb. turkey
19. Find the quotient for .2415 divided by .007.
- 345.0
  - 3.450
  - .3450
  - 34.5
20. Find the product of  $\frac{7}{8}$ ,  $2\frac{3}{4}$ , 7.4, and 0.16.
- 1.554
  - 15.54
  - .2849
  - 2.849
21. Find the mean for  $5.7 + 6.3 + 4.2 + 5.8 + 3.4$ .
- 5.1
  - 25.4
  - 6.3
  - 5.08
22. Find the monthly finance charge for an average daily balance of \$145.59 and annual percentage rate of 24%.
- \$ 29.11
  - \$291.18
  - \$ 2.91
  - \$ 34.94
- Use for the next 2 questions: Elaine Jackson purchased 2 sweaters at \$24.99 each, a belt for \$14.49, slacks for \$19.79, shoes for \$54.49, and 5 pairs of socks for \$3.99 a pair.*
23. How much did Elaine spend before sales tax was added?
- \$144.21
  - \$142.74
  - \$133.71
  - \$158.70



24. Assuming Elaine's sales tax is 6-3/4%, what was Elaine's total cost?
- \$153.94
  - \$142.74
  - \$152.37
  - \$169.41

Use for the next 3 questions.

New Balance	Previous Balance	Finance Charge	New Purchases	Payments	Credits
	\$332.64	\$4.05	\$62.24	\$50.00	\$48.02
\$426.00		\$6.00	\$120.00	\$100.00	None
\$466.21	\$550.75		\$57.50	\$120.00	\$30.00

25. Compute the new balance using the information in Row 1 of the table above.
- \$302.91
  - \$494.95
  - \$394.95
  - \$294.81
26. Compute the finance charge using the information in Row 3 of the table above.
- \$84.24
  - \$ 7.96
  - \$ 9.62
  - \$32.50
27. Compute the previous balance using the information in Row 2 of the table above.
- \$400.00
  - \$444.00
  - \$412.00
  - \$452.00
28. Find the decimal for 9.1%.
- .0091
  - 91.0
  - .091
  - .910
29. The Denver Ski Shop is selling a pair of ski boots at 22% below its regular price of \$260. How much does the buyer pay for the boots?
- \$254.28
  - \$202.80
  - \$238.00
  - \$ 57.20
30. Jerrica O'Reilly deposited \$800 into a savings account at Nations National Bank. The account earned an annual interest rate of 5 1/2%. What was her interest after three months?
- \$ 13.20
  - \$110.00
  - \$132.00
  - \$ 11.00



**Business Math Answer Key**

- 1) B
- 2) D
- 3) D
- 4) A
- 5) D
- 6) C
- 7) C
- 8) C
- 9) B
- 10) A

- 11) A
- 12) A
- 13) C
- 14) A
- 15) D
- 16) B
- 17) D
- 18) C
- 19) D
- 20) D

- 21) D
- 22) C
- 23) D
- 24) D
- 25) A
- 26) B
- 27) A
- 28) C
- 29) B
- 30) A