

GEORGIA SOUTHERN UNIVERSITY  
2000 MATHEMATICS TOURNAMENT  
JUNIOR HIGH WRITTEN EXAM

1. Evaluate:  $3\frac{1}{6} + \frac{1}{2} + 2$

- a) 4
- b) 8
- c)  $2\frac{3}{4}$
- d)  $2\frac{2}{3}$
- e)  $2\frac{1}{4}$

2. Convert 1.5 miles per minute to miles per hour.

- a) 15 mph
- b) 900 mph
- c) 45 mph
- d) 90 mph
- e) 150 mph

3. Houses on the north side of Main Street are numbered with consecutive even integers from 1902 to 2192. How many houses are there on the north side of Main Street?

- a) 291
- b) 146
- c) 145
- d) 290
- e) 141

4. The line passing through the point  $(1, 9)$  and  $(a-2, 6)$  has a slope of  $-\frac{3}{2}$ .

Find  $a$ .

- a) 4
  - b)  $-5$
  - c)  $-4$
  - d)  $-7$
  - e) 5
5. A box contains 3 red marbles, 2 blue marbles, and 1 yellow marble. If one marble is selected at random, what is the probability that the marble is blue?

- a)  $\frac{1}{2}$
- b)  $\frac{1}{6}$
- c)  $\frac{1}{3}$
- d)  $\frac{2}{3}$
- e)  $\frac{5}{6}$

6. What is 25% of  $\frac{8}{5}$ ?

- a)  $\frac{3}{5}$
- b)  $\frac{6}{25}$
- c)  $\frac{2}{5}$
- d)  $\frac{37}{20}$
- e)  $\frac{32}{5}$

7. A box that measures 1 foot by 1 foot by 2 feet contains how many cubic inches?

- a) 3456
- b) 2592
- c) 1728
- d) 3888
- e) 5832

8. Determine the median of the following numbers; 10, 21, 31, 13, 19, 14, 21, 29

- a) 18.5
- b) 19
- c) 20
- d) 21
- e) 40

9. Jack leaves Statesboro at 9 a.m. traveling toward Atlanta. At 11:45 a.m., Jack arrives in Atlanta and discovers that he has driven 200 miles. What was Jack's approximate average speed on the entire trip?

- a) 50 mph
- b) 55 mph
- c) 62.7 mph
- d) 66.7 mph
- e) 72.7 mph

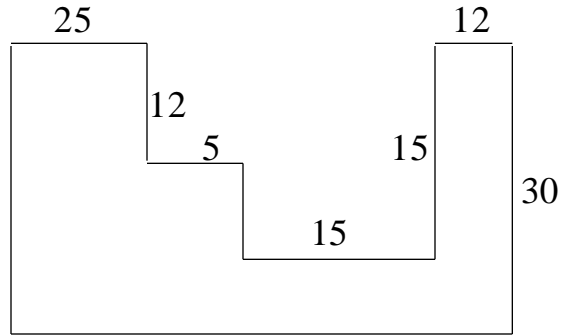
10. Solve for x:  $6 - 3[5 - 2(x + 4)] = 3x + 10$

- a)  $\frac{-19}{9}$
- b)  $\frac{-13}{3}$
- c)  $\frac{-10}{3}$
- d)  $\frac{5}{3}$
- e)  $-\frac{5}{3}$

11. An empty rectangular lot is 28 ft. by 45 ft. How many feet would you save by walking diagonally from one corner to the opposite corner of the lot instead of walking the length and width?
- a) 2736 ft.
  - b) 8.5 ft.
  - c) 38 ft.
  - d) 20 ft.
  - e) 0 ft.
12. If a car is traveling at 65 mph, what is its speed to the nearest kilometer per hour? Use 1 kilometer = 0.6 miles.
- a) 39
  - b) 108
  - c) 109
  - d) 78
  - e) 54
13. A certain square has an area of 16 square inches. If a triangle is formed inside the square by drawing a line from one corner to an opposite corner, find the area of the triangle.
- a) 8 sq. in.
  - b) 4 sq. in.
  - c) 64 sq. in.
  - d) 2 sq. in.
  - e) 32 sq. in.
14. The average salaries of three employees, Bob, Betty, and Jim, at the local school is \$20,000 a year. If Bob's salary is \$4000 less than Betty's and Jim's salary is two-thirds of Betty's, what is Bob's salary?
- a) \$20000
  - b) \$16,000
  - c) \$30,000
  - d) \$12,000
  - e) \$24,000

15. Find the area of the figure below.

- a) 1110
- b) 1425
- c) 1530
- d) 114
- e) 201



16. Five people enter a raquetball tournament in which each person must play every other person exactly once. Determine the total number of games that will be played in the tournament.

- a) 20
- b) 15
- c) 10
- d) 25
- e) 30

17. Bob has a blue candle and a yellow candle. The blue candle is 8 inches long and the yellow candle is 12 inches long. The blue candle burns  $\frac{1}{4}$  inch every hour and the yellow candle burns  $\frac{1}{2}$  inch every hour. Suppose Bob lights the yellow candle 6 hours after the blue one is lit and the candles burn continuously. How much longer will the blue candle continue to burn after the yellow one goes out?

- a) 1 hour
- b) 2 hours
- c) 3 hours
- d) 4 hours
- e) 5 hours

18. On a 10 question true and false test, determine the probability of a student guessing correctly on the third question?

- a)  $\frac{1}{2}$
- b)  $\frac{3}{10}$
- c)  $\frac{1}{10}$
- d)  $\frac{1}{5}$
- e)  $\frac{1}{8}$

19. During the month of September, Mary paid \$90 for her electrical bill, \$140 for her car payment, \$325 for her mortgage, and \$45 for insurance. What percentage of her total payments for September was spent on the electrical bill?

- a) 0.176%
- b) 6.67%
- c) 0.667%
- d) 15%
- e) 17.6%

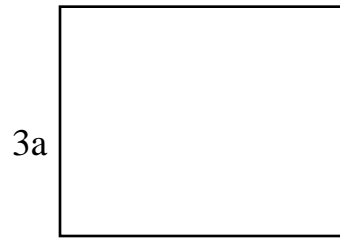
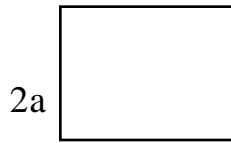
20. Express  $37\frac{1}{2}\%$  as a fraction.

- a)  $\frac{19}{50}$
- b)  $\frac{75}{2}$
- c)  $\frac{3}{8}$
- d)  $\frac{125}{333}$
- e)  $\frac{169}{450}$

21. Carla types 55 words per minute. A typical double-spaced page contains 500 words. How long will it take Carla to type 11 pages?
- a) 100 minutes
  - b) 120 minutes
  - c) 550 minutes
  - d) 605 minutes
  - e) 90 minutes
22. A plane is consuming fuel at the rate of 7.5 gallons per hour. The pilot has 18 gallons remaining in his tank. How long will the fuel last?
- a) 135 minutes
  - b) 2.4 hours
  - c) 240 minutes
  - d) 24 minutes
  - e) 13.5 hours
23. Joey purchased 7 shirts at \$10 each. He paid \$5.25 in sales tax, which brought the total of his purchase to \$75.25. What is the rate of sales tax?
- a) 7%
  - b) 8.5%
  - c) 0.07%
  - d) 7.5%
  - e) 8%
24. An airline has seats for 360 passengers on a flight and knows that only 90% of those making reservations will actually buy tickets. How many reservations should the airline accept for the flight so that all seats are sold?
- a) 396
  - b) 324
  - c) 36
  - d) 400
  - e) 760

25. How many feet of fencing are necessary to fence completely a rectangular yard which has a length of 20 feet and a width of 30 feet?
- a) 600
  - b) 50
  - c) 300
  - d) 100
  - e) 1300
26. If a plane travels 720 miles in 3 hours, how many hours will it take the plane to travel 1200 miles?
- a) 400
  - b) 5
  - c) 4
  - d) 240
  - e) 6
27. A 5% sales tax is charged for the purchase of a new car. If the tax is \$950. What is the total cost of the car?
- a) \$47,500
  - b) \$190,000
  - c) \$19,000
  - d) \$36,000
  - e) \$19,950
28. What is the remainder when  $5^{10}$  is divided by 2?
- a) 0
  - b) 1
  - c) 2
  - d) 3
  - e) can't determine

29. Using a fraction, compare the area of the smaller square to the area of the larger square.



- a)  $\frac{2}{3}$   
b)  $\frac{3}{2}$   
c)  $\frac{4}{9}$   
d)  $\frac{9}{4}$   
e)  $\frac{3}{4}$
30. Barbara purchased some pencils and erasers for \$1.80 (excluding tax). The erasers were \$0.15 each and the pencils were \$0.06 each. How many pencils did she buy if she ended up with more erasers than pencils?
- a) 2  
b) 3  
c) 4  
d) 5  
e) 6
31. The surface of Big Lake is 31 feet above the surface of Long Lake. Long Lake is half as deep as Big Lake and the bottom of Long Lake is 8 feet below the bottom of Big Lake. How deep is Long Lake?
- a) 23 ft.  
b) 39 ft.  
c) 13 ft.  
d) 15.5 ft.  
e) 78 ft.

32. In a group of 37 people, 18 are neither overweight nor lawyers. Ten are overweight and 13 are lawyers. How many lawyers in the group are not overweight?
- a) 9
  - b) 19
  - c) 14
  - d) 4
  - e) 24
33. Bob purchased 36 shirts at the local store for \$216 dollars excluding taxes. What was the cost per shirt?
- a) \$77.76
  - b) \$25.20
  - c) \$18.00
  - d) \$60.00
  - e) \$6.00
34. The Lincoln High Pep Club rented a bus to take all of its members to the state football championship game. The cost per person was to be \$18.00. However, those making the trip had to pay \$24.00 each because 10 members cancelled out at the last minute. How many pep club members took the bus to the game?
- a) 30
  - b) 50
  - c) 60
  - d) 40
  - e) 20
35. How many 3-digit even numbers less than 400 can be formed using only the digits 3, 4, 6, 8, and 9 given that all of the digits must be different?
- a) 8
  - b) 9
  - c) 10
  - d) 11
  - e) 7

36. Bill found a cookie jar and ate half of the cookies in it. Then Amy ate a fourth of the remaining cookies. Then Karia ate a third of the cookies left. If Ken and Juanita shared the remaining cookies equally and each received 2 cookies, how many cookies were in the jar before Bill found it?
- a) 12
  - b) 16
  - c) 24
  - d) 18
  - e) can't determine
37. Which of the numbers, 24, 30, 64, 99, or 125 has the **least** number of positive integer factors?
- a) 24
  - b) 99
  - c) 125
  - d) 30
  - e) 64
38. During the month of January, Suzanne made \$160.15 and \$543.94 deposits to her checking account. Also, she wrote checks for the amount of \$220.00, \$112.82, \$53.16, and \$26.95. If the beginning balance of her checking account for January was \$294.61, what is her ending balance?
- a) \$3.45
  - b) \$291.16
  - c) \$585.77
  - d) \$618.25
  - e) \$876.93
39. If nine less than twice a number is negative one, then what is the number?
- a) 4
  - b) -5
  - c) 6
  - d) -4
  - e) 5

40. A produce manager purchased 50 pounds of grapes at a wholesale price of \$75. If he wants to make a profit of 40 cents per pound, at what price should he sell the grapes?

- a) \$1.07 per lb.
- b) \$1.90 per lb.
- c) \$0.67 per lb.
- d) \$20 per lb.
- e) \$1.50 per lb.

## Answer Key for 2000 Junior High Written Exam

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