

Thirty-Third Annual Sixth Grade Math Blast

First Stage

*Directions:*

1. Use a #2 pencil.
2. Scratch paper may be used. You may write on this test.
3. Put your NAME and SCHOOL on the Scantron answer sheet
4. Transfer answers to Scantron carefully; be sure to make marks dark and erasures clean.
5. There is no penalty for guessing.
6. All fractions are to be simplified.
7. Use 3.14 for  $\pi$ .

1. How much larger is  $2 + 4 + 6 + 8 + 10 + 12 + 14 + 16 + 18 + 20$  than  $2 + 4 + 6 + 8 + 10$ ?

- a. 30
- b. 40
- c. 60
- d. 80
- e. None of These

2. Simplify:  $\frac{1 - \frac{1}{3}}{1 + \frac{1}{2}}$

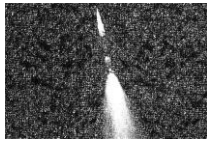
- a.  $\frac{1}{4}$
- b. 1
- c.  $\frac{3}{4}$
- d.  $\frac{4}{9}$
- e. None of These

3. Express the decimal sum as a simplified fraction.  
 $0.105 + 0.5 + 0.35$

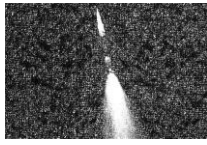
- a.  $\frac{145}{1000}$
- b.  $\frac{29}{200}$
- c.  $\frac{955}{1000}$
- d.  $\frac{191}{200}$
- e. None of These

4. Katy Perry made four purchases. She purchased 5 pairs of shoes at \$34 each; 6 handbags at \$72.40 each; 9 bottles of hairspray for \$3.57 each; and 12 packages of gum for \$1.13 each. How much did she spend?

- a. \$481.79
- b. \$4559.69
- c. \$650.09
- d. \$6500.45
- e. None of These



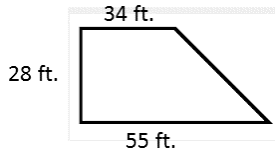
5. What is the largest 3-digit number that can be obtained from 9412805 by crossing out 4 digits? Keep the digits in their original order.
- 985
  - 958
  - 948
  - 982
  - None of These
6.  $\sqrt{3^2 + 4^2 + 5^2}$ ?
- 5
  - $2\sqrt{5}$
  - $5\sqrt{2}$
  - 50
  - None of These
7. How many numbers are equal to their reciprocals?
- 1
  - 2
  - 3
  - 0
  - None of These
8. Evaluate  $-1^{20} + (-1)^{20}$
- 2
  - 1
  - 0
  - 2
  - None of These
9. What is the result when the largest in the set  $\left\{\frac{3}{5}, \frac{4}{7}, \frac{2}{3}, 8, 0.4\right\}$  is divided by the smallest number in the set?
- 12
  - $13\frac{1}{3}$
  - 14
  - 20
  - None of These
10. Half of a third of a number is 324. What is the number?
- 54
  - 648
  - 972
  - 1944
  - None of These
11. The average of Karen's first three tests is 90 points. The average of her next two tests is 95 points. What is her overall average?
- 91 points
  - 92 points
  - 92.5 points
  - 93 points
  - None of These



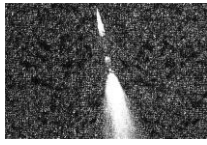
12. How many ways can United States coins be used to total 31 cents?
- 11
  - 13
  - 15
  - 17
  - None of These
13.  $\frac{x}{3} + \frac{x}{4} = 7$  What is  $x$ ?
- $\frac{1}{12}$
  - $\frac{7}{12}$
  - $\frac{12}{7}$
  - 12
  - None of These
14. A new rectangle is formed by taking the length of a rectangle and increasing its length by 20% and by decreasing its width by 20%. How does the area of the new rectangle compare to the area of the original rectangle?
- 96% of the original rectangle
  - The same size as the original rectangle
  - 4% larger than the original rectangle
  - There is not enough information to decide
  - None of These
15. Stash is standing on the 9<sup>th</sup> rung of a ladder. He goes up 6 rungs, down 2 rungs, up 3 rungs and down 9 rungs. He then goes up 11 rungs and ends up at the top rung. How many rungs are on the ladder?
- 18
  - 16
  - 14
  - 12
  - None of These
16. Compute:  $1.354 + 0.79 + 2.005 + 1.8 + 4.05 + 0.001$ ?
- 3.862
  - 10
  - 8.20191
  - 9.78
  - None of These
17. Compute:  $11^4$ .
- 121
  - 14641
  - 44
  - 484
  - None of These
18. Compute:  $\frac{99999}{33333}$
- 3
  - 33
  - 3333
  - 333333
  - None of These



19. A fence that cost \$2.50 per foot is built around the plot shown below. How much did it cost to fence the plot?



- a. \$432.50  
b. \$380  
c. \$345  
d. \$292.50  
e. None of These
20. Seth spent  $\frac{3}{5}$  of his salary and had \$2733 left. What was his salary?
- a. \$1639.80  
b. \$13,665  
c. \$4555  
d. \$6750  
e. None of These
21. How many even numbers are between 11 and 99?
- a. 43  
b. 44  
c. 45  
d. 88  
e. None of These
22. A sequence is formed using the following rule: If number, N, is divisible by 3, then the next number in the sequence is  $N/3$ , otherwise the next number is  $N+7$ . If the first four terms of a sequence are 30; 10; 17; 24; ..., what is the 10<sup>th</sup> term?
- a. 1  
b. 5  
c. 8  
d. 11  
e. None of These
23. The circumference of a circle is 20cm. Rounded to the nearest tenth of a square centimeter, what is the area of the circle?
- a. 15.9  
b. 18.8  
c. 27.2  
d. 31.8  
e. None of These
24.  $(333 + 333 + 333 + 333) + (222 + 222 + 222 + 222) = 555 \times \underline{\hspace{1cm}}$ ?
- a. 1  
b. 4  
c. 7  
d. 8  
e. None of These



25. Which of the numbers below is between  $\frac{1}{2}$  and  $\frac{3}{4}$ ?

- a. 0.2
- b. 0.4
- c. 0.6
- d. 0.8
- e. None of These

26. What is the smallest prime factor of 221?

- a. 1
- b. 3
- c. 5
- d. 7
- e. None of These

27.  $\frac{1}{3} + \frac{10}{3} + \frac{100}{3} =$

- a. 10
- b. 11
- c. 33
- d. 37
- e. None of These

28. The average of 11, 12, 13, 14, 15, 16, 17, 18, and 19 is

- a. 15
- b. 16
- c. 19
- d. 135
- e. None of These

29. What is  $\frac{4}{7}$  of  $\frac{7}{8}$  of 7?

- a.  $\frac{3}{2}$
- b.  $\frac{7}{2}$
- c.  $\frac{1}{2}$
- d.  $\frac{5}{2}$
- e. None of These

30. The total number of minutes in two weeks is

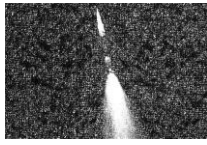
- a. 20,160
- b. 10,080
- c. 1440
- d. 336
- e. None of These

31. What is the distance a car can travel at 54 mph in 3 hours and 20 minutes?

- a. 180
- b.  $117\frac{1}{2}$
- c. 162
- d. 182
- e. None of These

32. What are all the whole number divisors of 60?

- a. 1,2,3,4,5,6,10,12,15,20,30,60
- b. 3,4,5,6,10
- c. 2,3,5
- d. 1,2,3,5
- e. None of These



33. The average of 4 tests is 73. Three of the scores are: 54, 68, and 93. What is the 4<sup>th</sup> score?
- a. 83
  - b. 90
  - c. 65
  - d. 77
  - e. None of These

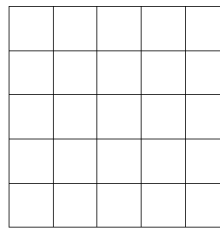
34. If 24 machines can process 3840 cards in 1 hour, how many are needed to process 4800 cards in an hour?
- a. 30
  - b. 40
  - c. 200
  - d. 28
  - e. None of These

35. Nathan is 14 pounds heavier than Sue. Together they weigh 192 pounds. How much does Nathan weigh?
- a. 89 pounds
  - b. 96 pounds
  - c. 100 pounds
  - d. 103 pounds
  - e. None of These

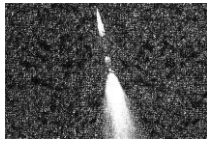
36. What is the sum of the first 20 counting numbers?
- a. 105
  - b. 210
  - c. 220
  - d. 231
  - e. None of These

37. Round \$943.50 to the nearest hundred dollars.
- a. \$1000
  - b. \$900
  - c. \$950
  - d. \$940
  - e. None of These

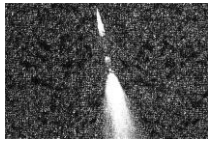
38. The area of each small square is 25 sq. cm. What is the perimeter of the large square?



- a. 625 cm
- b. 125 cm
- c. 100 cm
- d. 25 cm
- e. None of These



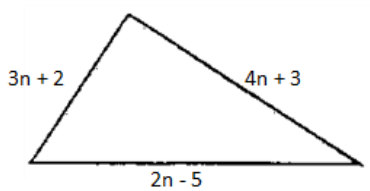
39. If the sales tax rate is 7.25%, how much tax must be paid on a pair of jeans that cost \$18.95?
- a. \$1.37
  - b. \$1.36
  - c. \$1.38
  - d. \$1.39
  - e. None of These
40. Solve: (3 hours, 42 minutes, 12 seconds) - (1 hour, 51 minutes, 37 seconds)?
- a. 2 hrs, 8 mins, 23 sec.
  - b. 4 hrs, 8 mins, 23 sec.
  - c. 1 hr, 51 mins, 37 sec.
  - d. 1 hr., 10 mins, 37 sec.
  - e. None of These
41. What is the decimal numeral for MCMXCIX?
- a. 1911
  - b. 1993
  - c. 1919
  - d. 1999
  - e. None of These
42. What is the least common multiple of 42 and 70?
- a. 2940
  - b. 210
  - c. 7
  - d. 70
  - e. None of These
43. What is the surface area of a cube whose side lengths are 4 inches?
- a. 64 sq. in.
  - b. 96 sq. in.
  - c. 48 sq. in.
  - d. 80 sq. in.
  - e. None of These
44.  $0.019 =$
- a. .019%
  - b. 0.19%
  - c. 1.9%
  - d. 19%
  - e. None of These
45. Which of the following numbers is not divisible by  $2^2$ ?
- a. 531
  - b. 540
  - c. 452
  - d. 360
  - e. None of These
46. All of the following are prime numbers EXCEPT:
- a. 13
  - b. 93
  - c. 29
  - d. 61
  - e. All of These are Prime Numbers



47.  $\frac{1}{1 + \frac{1}{1 + \frac{1}{2}}} =$

- a.  $\frac{3}{5}$
- b.  $\frac{5}{3}$
- c.  $1\frac{3}{3}$
- d.  $\frac{1}{5}$
- e. None of These

48. What is the perimeter of the triangle?

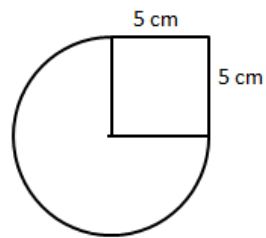


- a. 0
- b.  $1\frac{1}{9}$
- c.  $9n$
- d. 9
- e. None of These

49. Simplify:  $3^2 + 3^2 \times 3^2 + 3^2 \times 3^2 + 3^2$

- a. 180
- b. 324
- c. 1476
- d. 1548
- e. None of These

50. What is the area of the following figure?



- a. 100 sq. cm
- b. 103.5 sq. cm
- c. 78.5 sq. cm
- d. 83.875 sq. cm
- e. None of These