Thirty-Third Annual Sixth Grade Math Blast

Binary Star

Directions:

1. **Use a #2 pencil.**
2. **Scratch paper may be used. You may write on this test.**
3. **Put BOTH NAMES 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 π.**

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1. Which one of these is equal to 87×44?

   a. $(87 \times 40) + (87 \times 4)$

   b. $(80 \times 40) + (7 \times 4)$

   c. $(87 \times 40) + (7 \times 44)$

   d. $(80 \times 40) + (87 \times 44)$

   e. None of These

2. There are 14 animals available for adoption at the pet store, 8 dogs and 6 cats. Julia wants to adopt two pets. How many ways could she choose 1 dog and 1 cat?

   a. 14

   b. 24

   c. 48

   d. 64

   e. None of These

3. The angles of a triangle are in a ratio of 1:5:12. What is the largest angle?

   a. 150°

   b. 140°

   c. 130°

   d. 120°

   e. None of These

4. If $14n - 10m = 70$, what does $\frac{n}{5} - \frac{m}{7}$ equal?

   a. 1

   b. 70

   c. 2

   d. 35

   e. None of These

5. An adult human sleeps about $1/3$ of each day. An adult lion sleeps about $3/4$ of each day. How many more hours per day does the lion sleep than the human?

   a. 8 hours

   b. 9 hours

   c. 10 hours

   d. 11 hours

   e. None of These

6. Andrea can paint walls at a rate of 3.2 square feet per minute. How many minutes will it take her to paint an 8 foot by 16 foot wall?

   a. 15 minutes

   b. 20 minutes

   c. 30 minutes2

   d. 40 minutes1

   e. None of These

7. How many of these five fractions are between 1.5 and 2?

$$\frac{7}{8}, \frac{7}{4}, \frac{7}{5}, \frac{4}{3}, \frac{23}{15}$$

   a. 1

   b. 2

   c. 3

   d. 4

   e. None of These

8. On this calendar for March, 2014, what is the sum of all the shaded dates?

March, 2014						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

   a. 240

   b. 255

   c. 270

   d. 285

   e. None of These

9. The product of two natural numbers is 72. The difference of these numbers is 14. What is the sum of these two numbers?

   a. 17

   b. 18

   c. 22

   d. 24

   e. None of These

10. What is the sum of the least and greatest of these five numbers?
$\mathbf{0.2}; -\mathbf{0.3}; -\mathbf{0.04}; \mathbf{0.08}$

    a. 0.16

    b. 0.08

    c. 0.04

    d. -0.1

    e. None of These

11. The first three numbers in an arithmetic sequence are: 97,82,67,… What is the 10^{th} number in this sequence?

    a. -53

    b. -52

    c. -38

    d. -37

    e. None of These

12. One new oil well in Alaska required 10,500 feet of steel pipe. Each segment of the pipe was 32 feet long and weighed $1/4$ of a ton. (1 ton = 2000 pounds) How many pounds of steel were used for this one oil well?

    a. 124,000

    b. 165,000

    c. 660,000

    d. 2,640,000

    e. None of These

13. Of 162 eighth graders, 80% of the 90 girls and 75% of the boys are taking Algebra I. How many of the eighth graders are taking Algebra I?

    a. 121

    b. 126

    c. 130

    d. 132

    e. None of These

14. What is the sum of the prime factors of 2013?

    a. 75

    b. 76

    c. 674

    d. 675

    e. None of These

15. To protect his semi-circular vegetable garden from deer, Jesse must fence all sides with a fence. If the length of the diameter is 30 feet, how many feet of fence will Jesse use? Round your answer to the nearest foot.

    a. 72

    b. 77

    c. 94

    d. 124

    e. None of These

16. Angelique averaged 82 on her six 100-point math tests. If she averaged 70 on her first two tests, what did she average on the last four tests?

    a. 88

    b. 92

    c. 94

    d. 96

    e. None of These

17. In Fairbanks, Alaska, the number of hours of daylight increases rapidly each February. On February 1, sunrise was at 9:37 am and sunset was at 4:33 pm. On February 28, sunrise was at 8:02 am and sunset was at 6:08 pm. How many more minutes of daylight were there on February 28 than on February 1?

    a. 166

    b. 172

    c. 178

    d. 184

    e. None of These

18. What is the positive difference between the area of a square with perimeter 120 feet and the area of a rectangle with perimeter of 120 feet if the length of the rectangle is three times the width?

    a. 0 ft^2

    b. 100 ft^2

    c. 225 ft^2

    d. 400 ft^2

    e. None of These

19. A stack of 5 quarters is 1 cm tall. A stack of 4 dimes is the same height as a stack of 3 quarters. What is the total value of a 20 cm stack of quarters and a 30 cm stack of dimes?

    a. $45.00

    b. $48.00

    c. $50.50

    d. $54.40

    e. None of These

20. In November, 2014, Tanner's daughter Zelda will be one billion seconds old. In what year was she born?

    a. 1977

    b. 1980

    c. 1983

    d. 1988

    e. None of These

21. The average of $\frac{1}{4}$ and $\frac{1}{6}$ is

    a. $\frac{5}{12}$

    b. $\frac{1}{5}$

    c. $\frac{1}{10}$

    d. $\frac{5}{24}$

    e. None of These

22. One-half of the students walk to school. One-fourth of the remainder go to school by bicycle. What part of the school population travels by neither of these methods?

    a. $\frac{1}{4}$

    b. $\frac{1}{8}$

    c. $\frac{3}{8}$

    d. $\frac{5}{8}$

    e. None of These

23. The square root of $15 \times 20 \times 12$ is

    a. 6

    b. 60

    c. 80

    d. 6000

    e. None of These

24. How many squares (each with a perimeter of 12 cm) can be cut from a square whose perimeter is 48 cm?

    a. 4

    b. 9

    c. 12

    d. 16

    e. None of These

25. A whole number is called an increasing number if each digit in the number is greater than the digit to its left. For example,2359 is an increasing number. How many increasing numbers are there between 5000 and 10,000?

    a. 3

    b. 4

    c. 5

    d. 6

    e. None of These

26. The number of tens in 1000 is

    a. 3

    b. 10

    c. 100

    d. 1000

    e. None of These

27. The sum of the measures of any three angles of a rectangle is

a. 90°

b. 180°

c. 270°

d. 360°

e. None of These

28. Which of the following is most nearly equal to 1?

a. $\frac{99}{100}$

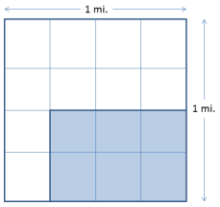
b. $1\frac{1}{99}$

c. 0.9

d. 1.1

e. None of These

29. Each square mile contains 640 acres of land. If each square mile is divided into 16 equal-sized smaller squares, how many acres would Thi have if he owned the shaded region?



a. 200

b. 220

c. 240

d. 260

e. None of These

30. How many zeros are at the end of the product of 15 billion times 12 million?

a. 10

b. 12

c. 14

d. 15

e. None of These

31. Half of 24 people leave the room. Then, half of those who left return. How many people are now in the room?

a. 6

b. 12

c. 18

d. 24

e. None of These

32. If ♣×♣+♦=♦, then ♣=

a. -1

b. 0

c. $\frac{1}{2}$

d. 1

e. None of These

33. When a number is added to $1/3$ of itself, the result is 60. What is the number?

    a. 40

    b. 45

    c. 80

    d. 90

    e. None of These

34. A circular pizza of radius 8 is cut into 8 equal slices. The perimeter of one slice is

    a. $16 + 2\pi$

    b. 2π

    c. 8π

    d. $8 + 4\pi$

    e. None of These

35. The greatest possible number of Tuesdays that can occur during a period of 45 consecutive days is

    a. 5

    b. 6

    c. 7

    d. 8

    e. None of These