

MONTANA COUNCIL OF TEACHERS OF MATHEMATICS
2014 MATH CONTEST
TEAM 7 - 8

DIRECTIONS: DO NOT WRITE ON THIS TEST. Place the best answer for each question on the separate answer sheet.

1. You have a cooler with outside dimensions of 10 by 10 by 10 inches. If each of the walls, top and bottom are 1 inch thick, approximately what is the volume of the inside of the cooler in cubic feet?
A) 100 B) 512 C) 800 D) 1000 E) None of these
2. You would like to fill your cooler with ice cream sandwiches. They have dimensions of 1 inch by 2 inches, by 4 inches, how many ice cream sandwiches can you fit into the cooler?
A) 16 B) 32 C) 64 D) 125 E) None of these
3. If you give 4 dozen pairs of pears to 4 pairs of bears and each bear ate an equal number of pears, how many pairs of pears did each bear eat?
A) 6 B) 8 C) 12 D) 14 E) None of these
4. In Mrs. Smith's math class, 12 students own a dog, 13 students own a cat, 5 students own both a dog and a cat, and 3 students own neither. How many students are in Mrs. Smith's class?
A) 20 B) 23 C) 24 D) 27 E) None of these
5. How many different three-member teams can be formed from a group of 5 students?
A) 6 B) 10 C) 20 D) 60 E) None of these
6. If a is the greatest common factor of 124 and 212, and b is the greatest common factor of 132 and 240, what is the least common multiple of a and b ?
A) 4 B) 6 C) 12 D) 48 E) None of these
7. In the country of Love, license plates have 5 letters. Only the letters L-O-V-E can be used, and a letter can never be used next to itself, how many license plates are there possible?
A) 16 B) 20 C) 324 D) 1024 E) None of these
8. Fourteen pennies are laid in a row on a table. First, every other coin is replaced with a quarter. Then, following the same pattern as before every third coin is replaced with a dime. Lastly, every fifth coin is replaced with a nickel. How much money do you have on the table?
A) \$1.23 B) \$1.47 C) \$1.67 D) \$1.89 E) None of these
9. Aaron found a pair of basketball shoes regularly priced at \$169.99 on sale for 30% off. Online he found a pair of shoes that were regularly priced at \$140.99 and were on sale for 20% off but had a shipping price of \$6.00. What is the total price of the less expensive pair of shoes?
A) \$51.00 B) \$112.79 C) \$118.79 D) \$118.99 E) None of these
10. Five chefs can prepare 30 desserts in ten minutes. At this rate, how many chefs are needed to prepare 108 desserts in 15 min?
A) 10 B) 12 C) 14 D) 16 E) None of these

11. How long will it take a 2 mile long train going 20 mph to go completely through a 2 mile tunnel?
 A) 3 min B) 6 min C) 9 min D) 12 min E) None of these

Team Test 7-8 2014 Page 2

12. A Spanish teacher got a \$200.00 grant to go to a Salsa Dance competition. Adult tickets are \$12.50 and student tickets are \$7.00. Two adults are accompanying the students. How many students got to attend the dance competition?
 A) 24 B) 25 C) 26 D) 27 E) None of these

13. Simplify: $(a - b)(a + b)$
 A) $a^2 + b^2$ B) $2a - 2b$ C) $a^2 - b^2$ D) ab E) None of these

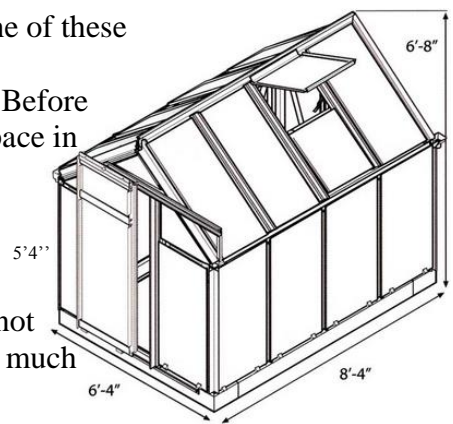
14. The equation $y = ax^2$ where a , a real number not equal to zero, is graphed. The graph formed is known as which of the following?
 A) line B) hyperbola C) exponential curve
 D) parabola E) None of these

15. In the pattern 3, 6, 10, 15, 21, 28, ..., what would the sum of the first 10 terms be?
 A) 66 B) 219 C) 285 D) 300 E) None of these

16. Pizza Castle sells its 12-inch pizza for \$11.29. Proportionally how much should they sell their 18-inch pizza for?
 A) \$15.34 B) \$16.22 C) \$17.98 D) \$19.99 E) None of these

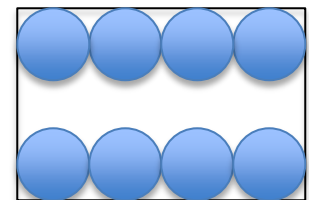
17. Mrs. Smith brought candy bars for her Algebra Class. She put 12 Snickers, 8 Recee's, 4 Twix, and 2 Caramello's in a large bag. If your favorite is a Snicker's, what is the probability that you will blindly draw a snickers on the first draw?
 A) 46% B) 50% C) 52% D) 66% E) None of these

18. Tony is a master gardener and has designed his future greenhouse. Before he begins construction, he will need to make sure he has enough space in his greenhouse. What is the volume of his greenhouse?
 A) 281ft^3 B) 317ft^3 C) 328ft^3
 D) 355ft^3 E) None of these



19. Tony is going to use glass on the outside of his entire greenhouse, not including the floor to promote the growth of his plants. About how much glass would he need to purchase to finish his shed?
 A) 132ft^2 B) 156ft^2 C) 222ft^2
 D) 345ft^2 E) None of these

20. As seen in the picture to the right, if each of Tony's bushes on the floor of his greenhouse are $2\frac{1}{12}$ ft in diameter, and the walkway between the plants is $2\frac{1}{6}$ ft wide. What is the approximate area of the unoccupied floor space (the walkway, and the space around the bushes)?
 A) 20.5ft^2 B) 25.5ft^2 C) 30.5ft^2 D) 35.5ft^2 E) None of these



2014 TEAM 7 - 8 Answer Key

- 1. B**
- 2. C**
- 3. A**
- 4. B**
- 5. D**
- 6. C**
- 7. C**
- 8. E**
- 9. C**
- 10. B**
- 11. D**
- 12. B**
- 13. C**
- 14. D**
- 15. C**
- 16. E**
- 17. A**
- 18. C**
- 19. C**
- 20. B**