ELEMENTARY: ARCTIC & ANTARCTICA

Directions: Choose the correct answer to each question. No calculators! In all cases, answer choice E) is NOTA, meaning None Of These Answers. Good luck and have fun!

1. Nathan and a group of friends are sailing in an open-topped box to Antarctica. If the box measures 2 meters by 3 meters by 4 meters, what is the volume of the box?

   A) 9 meters   **B) 9 cubic meters**   **C) 24 meters**
   D) 24 cubic meters   **E) NOTA**

2. When Nathan the human landed in Antarctica, he saw 3^3 penguins. A few minutes later, these penguins were joined by 2^4 penguins. How many total penguins did Nathan see?

   A) 14   **B) 17**   **C) 43**   **D) 72**   **E) NOTA**

3. Simplify: $1 + 2 + 3 + 4 + 5 \times 0$.

   A) 0   **B) 1**   **C) 10**   **D) 15**   **E) NOTA**

4. Antarctica is a cold place. It averages -50°C year-round! Given that $°F = \dfrac{9}{5} \times °C + 32$, find -50°C in Fahrenheit.

   A) 32   **B) -45**   **C) -58**   **D) -90**   **E) NOTA**

5. To combat the cold, Amanda brought warm clothing. She has 3 jackets, 5 sweatshirts, and 2 pairs of pants. How many different outfits of 1 jacket, 1 sweatshirt, and 1 pair of pants can she make?

   A) 10   **B) 13**   **C) 15**   **D) 30**   **E) NOTA**

6. There is a general school at the South Pole. Zach bought a cup of ramen for $2.35, a bottle of water for $1.95, and a coffee maker (to heat the water and make instant ramen) for $6.25. If he paid no taxes and had $2.20 left over after purchasing all these items, how much money did Zach have to begin with?

   A) $12.75   **B) $10.77**   **C) $10.33**   **D) $8.35**   **E) NOTA**

7. The general store also sells mangoes at 65 cents each. If Grace doesn't pay taxes and has $10 to spend, what is the maximum number of whole mangoes she can buy?

   A) 1   **B) 14**   **C) 15**   **D) 16**   **E) NOTA**
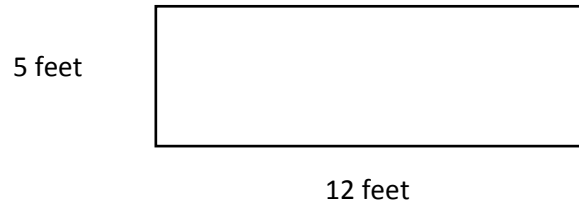
8. Evaluate (5 - 11)(5 - 10)(5 - 9)(5 – 8) … (5 - 1)(5 - 0).

   A) 86,400   **B) 7200**   **C) 0**   **D) -6**   **E) NOTA**

9. Cici was playing with a group of penguins. If the penguins were 99, 97, 110, 99, 102, and 93 centimeters tall, what is the mean height of all the penguins in centimeters?

   A) 99   **B) 100**   **C) 101**   **D) 102**   **E) NOTA**

10. A dwarf penguin named Adi joined Cici's penguin play group from Question #9. If Adi is 72 cm tall, what is the median height of all 7 penguins in centimeters?

    A) 99   **B) 100**   **C) 101**   **D) 102**   **E) NOTA**

11. To better watch over her penguins, Cici builds a pen in the shape of a dotetracontagon (42 sides). If each side is 1.5 feet long, what is the perimeter of the pen in <u>yards</u>?

    A) 0.5   **B) 21**   **C) 42**   **D) 63**   **E) NOTA**

12. Sophie the polar bear is making a nice necklace for her penguin friend Jimmy. She has three different ice beads, shaped as a cube, a sphere, and a star. How many different ways can she put these three beads onto a straight piece of string?

    A) 3   **B) 4**   **C) 5**   **D) 6**   **E) NOTA**

13. Jason carries his food in a cylindrical can. The volume of a cylinder is found with this formula: Volume = $r^2 \times h \times \pi$. If r = 3 cm, h = 14 cm, and π is about $\dfrac{22}{7}$, what is the volume of the can in cubic centimeters?

    A) 132   **B) 264**   **C) 396**   **D) 1848**   **E) NOTA**

14. While in Antarctica, Jeffery found lots of ice cubes. On the first day, he found 3 ice cubes. On the second day, he found eight. On the third day, he found 13 ice cubes. If this pattern continues, how many ice cubes will Jeffery find on the seventh day?

    A) 28   **B) 33**   **C) 38**   **D) 63**   **E) NOTA**

15. Bailey became bored of the South Pole and decided to ditch her friends and go to the North Pole. If she sailed at 25 miles per hour for 20 days, how miles did she sail?

    A) 500   **B) 600**   **C) 10000**   **D) 12000**   **E) NOTA**

16. Like Nathan, Bailey also saw a group of animals upon arrival at the North Pole. This particular group is made up as follows: $\frac{1}{2}$ of the animals are polar bears, $\frac{2}{5}$ are seals, and the rest are foxes. If there are 6 foxes, how many total animals (polar bears, seals, and foxes) are there?

    A) 12   B) 15   C) 30   D) 60   E) NOTA

17. 85% of the blue whales in a group are adults. What fraction of the blue whales are children, if a blue whale can only be an adult or a child?

    A) $\frac{3}{20}$ B) $\frac{3}{10}$ C) $\frac{17}{20}$ D) $\frac{17}{10}$ E) NOTA

18. Two walruses, Chase and Wayne, are fighting over an ice cream cone. They decide to play Rock, Paper, Scissors to determine who gets the ice cream come. If Chase always plays Rock and Wayne randomly plays Rock, Paper, or Scissors with equal probability, what is the probability that Wayne will win on his first try?

    A) $\frac{1}{3}$ B) $\frac{1}{2}$ C) $\frac{2}{3}$ D) 1   E) NOTA

19. There are two polar bears named Joyce and David that are racing in a narrow path between two icebergs that is just wide enough for the two to stand side-by-side. Joyce starts out 600 feet behind David, and runs toward him at 6 feet per second. David runs away from Joyce at 4 feet per second. If they start running at the same time, how many <u>minutes</u> will it take for Joyce to catch up to David?

    A) 5   B) 25   C) 60   D) 300   E) NOTA

20. Nick's Iceberg Research Center has a locked door protected by a code. The number to unlock the door is the same as the sum of the first 8 prime numbers. What is the number that will unlock the door?

    A) 36   B) 58   C) 59   D) 77   E) NOTA

21. If today is Saturday, December 10, 2011, what day of the week will Christmas, December 25, 2011 be on?

    A) Friday   B) Saturday   C) Sunday   D) Monday   E) NOTA

22. There is a certain iceberg in the shape of a rectangle. Given the dimensions below, find the perimeter of the top of the iceberg in square feet. (Figure not drawn to scale.)

5 feet

12 feet

   A) 17   **B) 34**   **C) 60**   **D) 120**   **E) NOTA**

23. At 8:00 AM, the snow outside was 10 inches deep. If snow started falling at 2 inches every half hour beginning at 8:00 AM, when would the snow reach 2 feet deep?

   A) 11:30 AM   **B) 3:00 PM**   **C) 8:00 PM**   **D) 11:30 PM**   **E) NOTA**

24. If $6x + 42 = 102$, what is $3x + 21$?

   A) 0   **B) 10**   **C) 30**   **D) 50**   **E) NOTA**

25. Pamela has an obsession with Pikachus. The general store at the North Pole carries a large stock of 250 stuffed Pikachus, and each one costs $20. Pamela decides to buy all 250 of them. How much would she have to pay if there is no tax on the purchase?

   A) $450   **B) $500**   **C) $4500**   **D) $5000**   **E) NOTA**

26. If you randomly pick a letter from the words "MINI MU", what is the probability you will pick a vowel?

   A) 3   **B) 1**   **C)** $\dfrac{1}{2}$ **D)** $\dfrac{1}{3}$ **E) NOTA**

27. There are many mountains in Antarctica. Niral decides to climb one of them. To get to the mountain, he drives 2.5 kilometers, bikes 800 meters, and walks 1000 centimeters. How many total <u>meters</u> did Niral travel?

   A) 1802.5   **B) 3310**   **C) 3400**   **D) 4300**   **E) NOTA**

28. What is $\dfrac{123456789 \times 6}{2 \times 123456789}$?

   A) 1   **B) 3**   **C) 4**   **D) 123456789**   **E) NOTA**

29. There are 8 countries that claim some land in Antarctica. Which of the following is <u>not</u> equal to 8?

    A) 2^3 B) 72 ÷ 9   C) (-1)(-8)   D) (12345)(0) + 8   E) NOTA

30. Freebie! The answer is A.

    A) Cool! Thanks!   B) I don't believe you.   C) Is that it?
    D) Why are you lying to me?   E) NOTA