**Instructions: Choose the letter of the correct answer.  In all cases, E) NOTA means “none of these answers”.**

1.  The distance between the Earth and the Moon is roughly 239,000 miles. How would you write this number in Scientific Notation?

**A.    239,000 x 100      B.    2.39 X 106         C.     2.39 X 105           D.    23.89 X 104          E.     NOTA**

2.  A spaceship launches from the moon and sets a course towards the Sun. If it will get to the Sun in 5 hours, how many **seconds** will the space ship take to get there?

**A.    300        B.   5000       C.   18,000       D. 180,000   E.    NOTA**

3.   Oh no! Winston is trapped on the moon and needs to escape! Luckily for him, there is an escape pod he can use, but it requires a passcode. Winston doesn’t know the passcode, but he knows some clues (which are listed below). What is the passcode that Winston should enter to escape?

The passcode is 4 digits long.

The first digit is twice the third digit.

The second digit is 0 and is 1 less than the third digit.

The fourth digit is the fourth smallest prime number.

**A.   2017             B.   2345             C.   3015               D.   4128             E.    NOTA**

4.  Urvi spotted a strange asteroid in the shape of a cube. How many faces does the asteroid have?

**A.  1         B.  6         C.  8        D. 12         E.    NOTA**

5.  It takes about 365 days for the moon to revolve around the Sun. How hours would that be?

**A**.  **8760                B. 3600               C. 600               D. 24               E.      NOTA**

6.  The Sun is a part of many religions. Neha incorrectly says that it is only part of 3 religions. What is true about the number 3?

**I.** It is the third smallest prime number.

**II.** It is a multiple of 45.

**III.** It is the first odd prime number

**A.     I only       B.    III only      C. II & III only      D.    I, II, &, III       E.  NOTA**

7.  Meghana loves learning about the sun. In her free time, she enjoys counting sunspots through a telescope. She counted 35 sunspots on Monday, 45 sunspots on Tuesday, and 40 spots on Wednesday. What is the average amount of sunspots Meghana counted for those three days?

**A.      120                 B.      50               C.      40                D.      24               E.      NOTA**

8.  Lillie is observing the number of asteroids in the sky from her spaceship. The first day she observes 64 asteroids. The second day she observes 56 asteroids. The third day she observes 48 asteroids. If this pattern continues, on what day will she see zero asteroids?

**A.      7            B.     8           C.      9           D.       10            E.      NOTA**

9.  Before Lillie got in her spaceship, she noticed that the tip of the rocket was shaped as a triangle. If the triangle has a base of 20 feet and a height of 40 feet, what is the area of the triangle in square feet?  The area of triangle is where b is the base and h is the height.

**A.   1000          B.      800          C.      600          D.      400         E.      NOTA**

10.  Uh Oh! Lillie’s spaceship is accidentally programmed to go to the Sun! In order for her to change the destination to the Moon, she has to know the following information :

A = number of faces a cube has

B = area of a square if the side length is 4

What is A + B?

**A.      36              B.      64              C.      180              D.      216              E.    NOTA**

11.   Lillie the “ex-star-ordinary” astronaut is in a spaceship heading to the moon and accidently hits the self-destruct button! To stop her spaceship from self-destructing, she must simplify the following expression:

                         [5000 – 230 + 45201 x (48 x 9756 x 790)] x (2017 x 0 x 564)

**A.      0       B.      4,500,000        C.      9,000,000       D.    123,456,789       E.      NOTA**

12.  Parul and Elise are on a spaceship to the Moon. However, they got bored within the first two hours and decided to quiz each other on math questions for fun. Parul’s question to Elise was, “If the surface of the sun is about 5500 degrees Celsius, how many degrees is it in Fahrenheit?” If Elise answered it correctly, what was her answer? The formula to convert Celsius to Fahrenheit is 

**A. 2456             B.      3784            C.  9932          D.    10,261               E.      NOTA**

13.  Hua is making a password for his moon base. He wants it to be his favorite number. Hua’s favorite numberis 25% of 128. What is Hua’s favorite number?

**A.      128            B.      64            C.      32           D.      25            E.      NOTA**

14.  Hua owns lots of space suits! He has 12 helmets and 6 body suits. Each outfit contains one helmet and one bodysuit. If is taking a trip to the Moon, how many possible outfits combinations can Hau wear?

**A.      2            B.      12            C.      18            D.      72            E.      NOTA**

15.  Professor Kukui wants to know which number comes next in the sequence below. What number should he choose?

  1,  4,  9,  16,  25,  36, 49, 64,  ?

**A.  49     B.   64      C.  81      D. 128        E.  NOTA**

16.  Professor Kukui has done “moon-rous” amounts of research on moons. He knows that there are 8 different phases, with each phase on a different day. In order from waxing to waning, the phases are: new moon, waxing crescent, first quarter, waxing gibbous, full moon, waning gibbous, last quarter, and waning crescent. If it was a new moon on Monday, February 6th, then what moon phase will it be on Monday, February 20th? Waning is when we see less and less of the moon and waxing is when we see more and more of the moon. One complete moon phase is 28 days.

**A.      Waning crescent              B.      New moon             C.        Full moon**

**D.      First quarter             E.      NOTA**

17.  Professor Kukui has a “spacious” bag filled with large, gigantic, and enormous moon rocks. There are 12 large moon rocks, 8 gigantic moon rocks, and 25, enormous rocks. What is the probability of Professor Kukui picking one gigantic moon rock on his first try?

**A.               B.              C.             D.   not possible             E.      NOTA**

18.  If the words SPACEISCOOL repeats in an infinite pattern as shown below, what is the 2017th letter?

SPACEISCOOLSPACEISCOOLSPACEISCOOL…

**A.  S       B.  P       C.  O       D.  C      E.  NOTA**

19.  Jessica is currently on the moon in Clavius crater located at (5, 5), and goes up 10 units, left 3 units, and down 5 units to get to Apollo crater. Where is Apollo crater located?

**A. (2, 10)     B.  (3, 0)       C.  ( 3, 15)     D. (-5, 13)      E. NOTA**

20.  Yay! Jessica finally reached the Apollo Crater, however, she forgot her favorite stuffed teddy bear at the Clavius Crater. If her spaceship traveled at a rate of 150 miles per hour and her journey to the Apollo Crater took about 8 hours, what is the total distance Jessica traveled in miles?

**A.     150      B.  800     C.  1200     D.  1500     E.  NOTA**

21.  Which country has sent people to the moon?

**A.  United States    B.  Russia    C.  Japan    D.  China    E.  NOTA**

22.  How many ways can the word SPACE be arranged?

**A. 5    B. 15    C.  120     D.  3,125     E.  NOTA**

23.  May weighs 162 pounds on Earth. How many ounces would May weigh on the Moon? There are 16 ounces in a pound and your weight on the moon is ⅙ of your weight on Earth.

**A.  2592    B. 432    C. 162    D. 27    E.  NOTA**

24.  Katharine loves drawing shapes! On her spaceship, she decided to draw a bunch of he favorite shapes.  If the design looked liked this: What is next shape should Katharine draw next?

**A. hexagon      B. heptagon       C. dodecagon      D.  circle   E.  NOTA**

25.  Katharine, the girl who loves drawing shapes, is designing windows for her spaceship. Started out with a square of side length 2 in., then she shortened the width by ½ in. and increased the length by 1.5.in.  What is the area, in feet, of her new shape?

**A.  3      B.  8.75      C. 5.25     D.  not enough information      E.  NOTA**

26. Lillie, Hua, Professor Kukui, Guzma, and Plumeria are in line to board a spaceship to the Sun. What place is **Guzma** in line if:

\*Lillie wants to be the last person to board the spaceship.

\*Plumeria wants to be directly in front of Guzma so she can show him who’s the boss.

\*Hua wants to be right behind Professor Kukui so that they can talk about space.

\*Hua and Guzma don’t like each other and decide not to stand next to each other.

\*Professor Kukui wants to be in the middle of the line.

**A.  2nd   B. 3rd    C. 5th    D.  1st   E.  NOTA**

**Use this information for questions 27 and 28:** Jennifer and Victoria are admiring the day sky when suddenly there is a solar eclipse! The diagram below shows what they see:

Sun

PICTURE NOT TO SCALE OR ACCURATE

27.  What is the area, in square miles, of the Moon if its radius is 1000 miles? (Hint: The area of a circle is A=πr2 where r is the radius.)

**A.  1,000,000**π **B.  2,000,000**π **C. 2,500,000**π **D.  5,000,000**π **E.  NOTA**

28.  What is the area of the Sun, in square miles, that can be seen (darker region), if the radius of the Sun 400,000 miles?

**A. 160,000,000,000**π **B.  150,000,000,000**π **C. 155,000,000,000**π

**D. 159,999,000,000**π**E.  NOTA**

29.  Lauren has a map of the solar system laid out in front of her. She uses a ruler to measure the distance (in inches) between the Sun and Moon and finds that they are 7 inches apart. If the scale is

1 in = 20 million miles, how many miles are they apart?

**A.  160 million   B. 140 million   C. 7 million D.  not enough information    E.  NOTA**

30. Plumeria wants to decorate her spaceship with stars! Guzma says that the perfect number of stars is the 23 x 32. What is the perfect number of stars Plumeria should use on her spaceship?

**A.   36      B. 72       C. 128    D. 256    E.  NOTA**