DaBaby is planning a trip to space but needs to make metal screws for the spaceship. Each screw is a combination of three pieces: a top cylinder of radius 6 cm and height of 1 cm, a middle cylinder of radius 4 cm and height of 8 cm, and the final piece being an upside-down cone with base radius of 4 cm and height of 6 cm.

1. How many centimeters is the circumference of the base of the top cylinder, in terms of ?

a. cm. b. cm.c. cm. d. cm. e. NOTA

2. What is the volume of a screw, in cm3?

a. b. c. d. e. NOTA

3. DaBaby has 3000 cm3 of metal for the screws. How many whole screws can he make?

a. b. c. d. e. NOTA

4. DaBaby plans on landing on a planet that is shaped as a sphere with a radius of 550 meters. What is the volume of the planet in terms of .

a. m3 b. m3c. m3 d. m2 e. NOTA

5. Before taking off, DaBaby needs to make sure that he is on the right trajectory. He starts at point (1,2) and plans to end up at (6,9). What shortest distance that DaBaby can take to the planet.

a. b.c. d. e. NOTA

6. DaBaby now decides that he wants to pick up some comet dust on the way to the planet. If the comet dust is only located on the line y=-1, what is the shortest distance that the ship can travel to start from the point (1,2), get comet dust, and end up at (6,9)?

a. b.c. d. e. NOTA

7. Once DaBaby arrives, he finds a potato field surrounded by a fence. He calculates the length of the fence to be 7927 meters, exactly. He points out that the shape formed by the fence maximizes the enclosed area of the field. How many sides does the shape formed by the fence have, assuming the fence posts are negligible in size?

a. b.c. d. 1 e. NOTA

8. DaBaby finds that the planet has a lot of flowers in an 18-sided n-gon. How many diagonals does the flower have?

a. b.c. d. e. NOTA

9. DaBaby wants to know the sum of the interior angles of the flower. Find the sum of the interior angles of a 18-gon.

a. b.c. d. e. NOTA

10. DaBaby wants to draw some crop circles, but with his own twist. Instead of circles, he will draw crop lines. Find the maximum amount of intersection points of 7 non-parallel lines.

a. b.c. d. e. NOTA

11. DaBaby now plans to travel to a new planet. DaBaby is recalibrating his autopilot to take him to the new planet. There are two paths shown, modeled by the lines y=5x+2 and y=5x+10. What is the distance between the two paths?

a. b.c. d. e. NOTA

12. DaBaby never skips leg day. After hitting legs, he eats a protein bar shaped in a 14-sided n-gon to recover his energy. What is the name for a 14-sided polygon?

a. Quadecca b quaddecagonc. tetrakaidecagon d. tetralateral e. NOTA

13. DaBaby has been hitting the gym while not going on adventures in space, and as a result, his biceps have increased in size! If his biceps are in the shape of a sphere, and if originally it had a radius of 10 meters, but now it has a diameter of 24 meters, what is the percent increase of his biceps.

a. b.c. d. e. NOTA

14. DaBaby meets an alien named Divvy Lunne, who claims that all squares are rectangles, and all parallelograms are squares. How can DaBaby correct this statement?

a. All rectangles are parallelograms, and all parallelograms are squares.

b. All rectangles are squares and all parallelograms are squares.

c. All squares are rectangles, and all squares are parallelograms.

d. It is perfect as is.

e. NOTA

15. DaBaby is in a quest to find the Top Grandmaster of the Galaxy, and in order to do so, he must prove himself worthy. What does CPCTC stand for?

a. DaBaby on top.

b. Corresponding parts of congruent triangles are complementary.

c. Complementary parts of congruent trapezoids are complementary.

d. Corresponding parts of congruent triangles are congruent.

e. NOTA

16. DaBaby meets Divvy’s boyfriend, Nelson, who tells him that he can lead the way to the Top Grandmaster of the Galaxy if DaBaby solves his three questions. The first question is “What is the length of in the triangle below?” Can you help DaBaby answer Nelson’s question given that the three lines extending from each of the vertices to the opposite side intersect at the same point?

2

5

3

4

6

a. b.c. 9 d. e. NOTA

17. Nelson’s second question is “There is a triangle ABC such that AB=34, BC=25, and AC=13. Line segment AD exists such that point D lies on BC and BD=5 and DC=20. What is the length of AD?” If DaBaby gets this question correct, what did DaBaby answer?

a. b.c. d. e. NOTA

18. Amazed, Nelson asks his final question: Let the line segment drawn connecting one vertex to the opposite side be an angle bisector. What is the length of in the triangle below? What should DaBaby answer to get the question right?

12

8

6

a. b.c. 10 d. e. NOTA

19. Since DaBaby answers the questions correct, Nelson, along with his fire sister Sophie, agrees to lead him to the Top Grandmaster of the Galaxy. While Nelson packs his things, DaBaby walks around with Sophie and meets two giant trees named Yimo and YangYang. YangYang has a height 4 miles, while Yimo has a height of 3 miles. If two ropes from the top of each tree to the bottom of the other were made, how high above the ground would these ropes meet?

a. mi b. mc. mi d. mi e. NOTA

20. Nelson packs cookies in the shape of James the Jackal’s face for the trip. If James has a face in the shape of a hexagon with side length 12 inches (James has a massive forehead), what is the area of James’ face, in in2?

a. b.c. d. 144 e. NOTA

21. While waiting for Nelson to finish packing, DaBaby meets Nima the Nshjfabfnnvsl. Nima offers to give DaBaby a grill if he can tell her the length of the external tangent of two nonconcentric circles with radii of 12 and 18 cm whose centers are 32 cm apart. What should DaBaby answer?

a. b.c. d. e. NOTA

22. DaBaby loves his beautiful pearly whites, and instead decides to ask Nima a question. If Nima gets it right, she will receive a blue LA cap. DaBaby asks “What is the length of the internal tangent of the 2 circles from your question?” If Nima gets her drip improved by the cap, what did Nima answer?

a. b.c. d. e. NOTA

23. DaBaby then sees some anthropomorphic mice playing a game. The mice, named Lily, Shawn, and Daniel, are playing a game of intergalactic dice. All the participants roll the dice once. This dice is weird and only dishes out real numbers on the interval from 0-3. What is the probability that the sum of the squares of those numbers is more than 8?

a) b) c) d) e) NOTA

24. Lily then leaves to go to the Sloth galaxy. To get there, she needs to catch the intergalactic spaceship. This shuttle arrives every day from midnight to 1:00 am randomly, never going past the ranges. The shuttle is on a tight schedule and can only wait 3 minutes for someone to get on however, Lily is willing to wait 15 minutes, also arriving between 12:00 AM to 1 AM randomly. What is the probability that Lily goes on the shuttle to galaxy Sloth?

a.105/400 b.107/400 c.110/400 d.115/400 e. NOTA

25. Nelson and DaBaby now leave to meet the Top Grandmaster of the Galaxy. While travelling in space, DaBaby looks out the window. He sees a person waiting on a nearby asteroid. David is late again! To reach class, David has to catch the space bus. The bus arrives randomly between 1:00 AM to 3:00 AM every day at David’s stop. David, being habitually late, arrives at 2:30 AM. Given that he has nothing to do and will wait until either the bus arrives or it reaches 3:00 AM, what is the probability that David will catch the bus on any given day? Assume that the bus does not wait at all.

a) ½ b) 1/3 c) ¼ d) 1/6 e) NOTA

26. In order to get to the Top Grandmaster of the Galaxy’s palace, DaBaby and Nelson need to travel through a black hole shaped as dodecagon with circumradius 2. What is the area of the black hole?

a. b.c. 10 d. e. NOTA

27. The black hole spits the ship on to the opposite side of the galaxy. DaBaby looks out the window to see the Top Grandmaster of the Galaxy’s palace. If the palace is in the shape of a cube, which of these is not a figure that could result from a cross section of a cube?

a. Triangle b. Parallelogramc. Pentagon d. Hexagon e. NOTA

28. At the palace, DaBaby confronts the Top Grandmaster of the Galaxy, Arib. DaBaby challenges Arib to a swordfight. DaBaby’s lightsaber is 32 cm long, while the Top Grandmaster of the Galaxy’s is 14 inches. Who has a longer saber and by how much? Use 1 inch=2.54 cm.

a. The Top Grandmaster of the Galaxy; by 35.56.

b. The Top Grandmaster of the Galaxy; by 3.56.

c. DaBaby; by 3.56.

d. DaBaby; by 2.54.

e. NOTA

29. DaBaby loses his swordfight with the Top Grandmaster of the Galaxy. However, Aaron the Alien from Apocalypse with Apples for Arms requests that DaBaby be made the Top Musician of the Galaxy. Arib agrees to this so long as DaBaby can tell him the volume of an ellipsoid with radii of 12, 13, and 17. If DaBaby gets this wrong, he will be turned into a convertible forever. Help DaBaby be stay human by answering this question.

a.b. c. d. e. NOTA

30. DaBaby answers the question correctly and becomes the Top Musician of the Galaxy. A party is held with everyone on this test attending, along with some special guests like Mr. Kenyon. DaBaby decides to do a performance. Which of these is not a song by Dababy? Hint: DaBaby never apologizes.

a. Suge b. Sorry c. Rockstar d. Levitating e. NOTA

31. DaBaby is now planning on traveling to another planet, which is cone shaped. If it has a height of 10 meters, and the base has a diameter of 6.9 meters, what is the volume of the planet.

a. 119π b.39.675π c.476.1 d.476.1π e. NOTA

32. DaBaby meets Jay the Jsajfbhhfbe, who is shaped like the sector of a circle with radius of 4. If the sector has area of 6pi, what angle does the sector have, in degrees?

a. 45 b. 270 c. 135 d. 225 e. NOTA

33. On the new planet, there are craters shaped in an octagon. What is the length of the apothem if the octagon has a side length of 5 meters.

a. b. c. 5 d. e. NOTA