For all questions, answer choice (E) NOTA means that none of the given answers is correct. Good Luck!

1. Riyon is addicted to Minecraft. He can't stop playing it, so every day on weekdays, he plays 18 hours of Minecraft. On the weekends, he plays 21 hours. Obviously, Riyon must eat so he uses 2 hours of his day to eat. When Riyon is not playing Minecraft nor eating, presume he is sleeping. If this pattern continues for 3 weeks, how many hours of sleep did Riyon get those 3 weeks?

   (A) 24 hours   (B) 66 hours   (C) 344 hours   (D) 396 hours   (E) NOTA

2. Tanmay and Nitish are big brained people and using those big brains found an effective method to find the radius of their heads. The radius of Tanmay's head is 4 and Nitish's is 3. Find the sum of the circumference and area of both Tanmay and Nitish's head in terms of π. (Assume their heads are perfect circles) Hint: Area: πr^2 and Circumference: $2\pi r$. Answer in terms of π.

   (A) 39π (B) 28π (C) 63π (D) 14π (E) NOTA

3. Evaluate $\dfrac{98!}{96!}$. Hint: ! is a factorial, a way to represent the product of all positive integers less than or equal to n!, ex. $5! = 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1 = 120$.

   (A) 2   (B) 194   (C) 9506   (D) 9408   (E) NOTA

4. Ananya realizes that she doesn't have enough money to pay for a car, therefore she gathers all her money. After a shocking realization that she is indeed broke, she finds that three of her banks have different amounts of money, the first having 20 dollars and 3 coins, the second having 35 dollars and 5 coins, and the third having 70 dollars and 6 coins. Find the sum between the maximum amount of money Ananya can have and the least amount of money she can have if she gathers all her money from all three banks. (Only use quarters, dimes, nickels, and pennies)

   (A) $125.14   (B) $255.23   (C) $253.64   (D) $3.36   (E) NOTA

   Use the information below to answer question 5 and 6:

   Adhya, Anvitha, Prachee, and Pranavi were all having a competition on who could run for the longest. Prachee is able to run for 10 minutes without stopping, and Adhya can run 30% longer. Anvitha is able to run 70% longer than Adhya while Pranavi is able to run 10% more than Anvitha.

5. How long can Pranavi run in minutes?

   (A) 24.31   (B) 22.10   (C) 7   (D) 24.10   (E) NOTA

6. Find the positive difference between how long Anvitha and Prachee can run in minutes.

   (A) 2.21   (B) 0.21   (C) 42.26   (D) 3.56   (E) NOTA

7. Define the operation: $x\Delta y = x^y - y^x + xy$. What is $2\Delta 3$?

   (A) -1 (B) 5   (C) 2   (D) 3   (E) NOTA

8. Vaneesha loves to create random names, she especially loves Gymnastico, Yogi, Bogus, Decidueye, and Ogo. Each name has a different value to Vaneesha with how long the name is in descending order. 1 Ogo's is worth 3 Yogi's. 5 Yogi are worth 12 Bogus'. 8 Bogus' are worth 12 Decidueye's. 9 Decidueye are worth 14 Gymnastico's. How many Ogo's are worth 84 Gymnastico's?

   (A) 5   (B) 15   (C) 4   (D) 12   (E) NOTA

9. Viswa, the most famous ninja, has been challenged to climb a building. Viswa is so talented that his ability to climb buildings allows him to go up 7 floors each day, but fall back down 3 floors each night. The building he has been tasked to climb has exactly 69 floors. How many full days will it take Viswa to climb this building?

   (A) 15   (B) 18   (C) 19   (D) 16   (E) NOTA

10. Adhya and Sukeerth decide to compete with Prisha and Natani to see who is better at coding. They both time themselves coding programs to solve a variety of problems, and whoever is faster wins. Adhya and Sukeerth can code 7 programs in 51 minutes, and Prisha and Natani can code 3 programs in 22 minutes. Find the group that could code faster. (Round to the nearest hundredth when solving.)

    (A) Adhya and Sukeerth (B) Prisha and Tanmay   (C) Its a tie!   (D) Sukeerth   (E) NOTA

11. Suhas loves to auto-lock Reyna in Valorant. Because of this, he doesn't know how to play any other agent in the game other then Reyna. When it rains, there is a 75% chance he will auto-lock Reyna. When it is windy, there is a 80% chance he auto-locks Reyna. What is the chance that he auto-locks Reyna when it is windy and rainy. Express your answer as a common fraction.

    (A) $\dfrac{1}{2}$ (B) $\dfrac{31}{20}$ (C) $\dfrac{3}{5}$ (D) $\dfrac{3}{4}$ (E) NOTA

12. Suhas and Vib are versing each other in a fencing match. Suhas has 3000 health while Vib has 1000 health. Every attack from Suhas to Vib does 100 damage while every attack from Vib to Suhas does 500 damage. They start attacking each other at the same time and they attack each other every 5 seconds. Who will win the fight and how much health will they have remaining?

    (A) Suhas, 2800 health   (B) Vib, 400 health   (C) Suhas, 400 health   (D) Vib, 800 health   (E) NOTA

13. Adhya is struggling with exponents and asks her brother for help. Sukeerth, Adhya's brother, doesn't give much help expecting her to do it by herself, but gives a single hint. The problem 4^5 is not equal to 1. Find 4^5 so you can help Adhya prove she is smart to Sukeerth.

    (A) 1   (B) 216   (C) 1024   (D) 256   (E) NOTA

14. Riyon despises apples and wants to give them all away. He realizes the amount of apples he has is equal to a bakers dozen. If he wants to give one whole apple to each of his 11 friends, how many apples does Riyon have left.

    (A) 0   (B) 1   (C) 2   (D) 12   (E) NOTA

15. Sagar always plays Super Smash Bros Ultimate (SSBU). Sagar plays SSBU so much that he can easily beat 3 legend players by himself. Sagar is classified as a super legend and can beat 3 legends. 1 legend can beat around 20 impossible players. 1 impossible player can beat 2 mediocre players. How many mediocre players can Sagar and his team beat at SSBU if he also has 2 legend players on his team.

    (A) 120   (B) 200   (C) 60   (D) 20   (E) NOTA

16. Pranavi despises Loona so much she can't stand any of their music. Haasini, her sister, on the other hand loves Loona and has their entire album collection in her room. If Haasini has around 1296 Loona songs, help Pranavi remove them by finding what 1296 is in Roman numberal form.

    (A) MCCXCVII   (B) MCXXVI   (C) MCLXVIII   (D) MCLXXXVIVI   (E) NOTA

17. Find the next term in the following arithmetic sequence: $\dfrac{5}{20}$, $\dfrac{18}{24}$ ...

    (A) $\dfrac{31}{28}$ (B) $\dfrac{23}{28}$ (C) $\dfrac{13}{4}$ (D) $\dfrac{5}{4}$ (E) NOTA

18. Pranavi, who has always been afraid of frogs, finds herself in a room with a dozen frogs. Every time she tries to step away from the closest frog, 12 more frogs come in the room. Although, when Pranavi solves a math question, 5 frogs leave the room. If Pranavi takes 12 steps before she realizes this, find the number of math questions Pranavi will have to answer so there are no more frogs in the room.

    (A) 29   (B) 30   (C) 31   (D) 32   (E) NOTA

19. Evaluate $2 + (12 \times 5 + 89 \div 2 \times 22) \times (99 - 52) \times (55 \div 5) \times (96 \div 44) \times (99 \div 9 - 11)$.

    (A) 0   (B) 2   (C) 1241   (D) 1231   (E) NOTA

20. Given that $x = 16$, evaluate the following:

    $$\sqrt{x} + x^2 - 24x$$

    (A) -124   (B) 644   (C) 256   (D) -383   (E) NOTA

21. Shravan hates math problems, he hates them so much that he has a dilemma. Shravan has to solve this one question or go on his entire life solving math problems. What is 5% of 15% of 20% of 800.

    (A) 1.2   (B) 24   (C) 22   (D) 2.5   (E) NOTA

22. Anvitha loves skating, she loves skating so much that it has become her primary transportation for any amount of distance. Anvitha skates 5 miles west, 3 miles north, 19 miles east, 9 miles south, 8 miles west, and 3 more miles east. What is Anvitha's position from her starting point.

    (A) 9 east, 6 south   (B) 6 east, 9 south   (C) 9 west, 6 north   (D) 6 west, 6 north   (E) NOTA

23. Anish is an incredible artist with his rare talent to achieve quality results in efficient time. Anish can paint about 5 paintings in the time Himank watches 3 episodes of Chernobyl. How many paintings can Anish finish if Himank watches 51 Chernobyl episodes.

    (A) 17   (B) 85   (C) 15   (D) 75   (E) NOTA

24. Daniel travels all the time, he travels so much he has flown across the entire world around 3 times. The worlds approximate circumference is 24,900 miles long. If Daniel was going 300 miles per hour, how many hours did it take him to completely circle the world 3 times? Assume there were no stops or any speed changes.

    (A) 249   (B) 250   (C) 248   (D) 251   (E) NOTA

25. Find the area of the trapezoid.
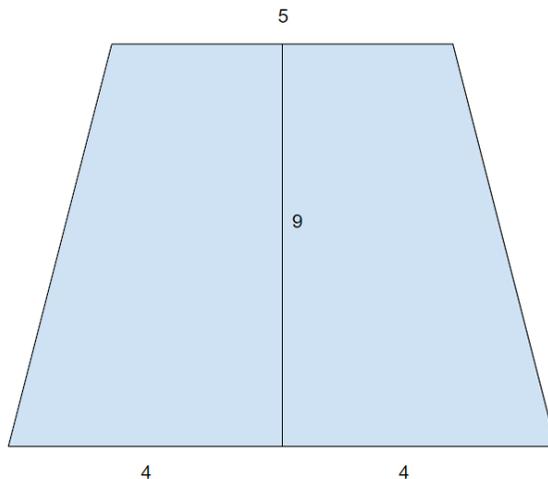
(A) 117   (B) 40   (C) 58.5   (D) 105.5   (E) NOTA

26. Unlike Suhas, Vib is more flexible in Valorant with agents. He has a set of 10 agents that he picks from. What is the chance he picks the agent Fade in his first game, and then Omen in his second game, assuming that he cannot play the same agent twice in a row. Express your answer as a common fraction.

(A) $\dfrac{19}{90}$ (B) $\dfrac{1}{90}$ (C) $\dfrac{3}{5}$ (D) $\dfrac{4}{5}$ (E) NOTA

27. Vibav (Vib) is in absolute love with milk, he drinks it in the morning, afternoon, and night. He even stocks up on milk and currently has 9 gallons of milk. Vib drinks 22 quarts and 6 pints of milk. How many cups of milk does Vib still have left?

(A) 44   (B) 36   (C) 16   (D) 48   (E) NOTA

28. While taking this test you may think either you are doing great or not as good as you would of liked, well that is perfectly alright but you still have a few questions to go so good luck with the rest of your test. Now back to the test, find the sum of the mode, mean, range, and median of the data set below.

$$36, 8, 40, 14, 28, 38, 26, 16, 4, 18, 14$$

(A) 88   (B) 86   (C) 92   (D) 94   (E) NOTA

29. Remember Prachee and Pranavi? Well, Prachee couldn't bear losing and especially getting last. Therefore, she decided to rematch Pranavi, not in racing, but in a difficult math question. If Anish, Haasini, Vibav, Prachee, Anvitha, and Natani sit in a circle, how many distinct arrangements can they sit together in? Solve this question so Prachee can finally earn back her dignity and respect.

(A) 120   (B) 720   (C) 600   (D) 450   (E) NOTA

30. The James S. Rickards Fall Invitational is one of the largest competitions in the southeast, generally with over 1000 competitors from over 45 elementary, middle, and high schools. This invitational is also known to be a harder competition than others. However, just find x if $x = 1$.

(A) 0   (B) -1 (C) i (D) 1   (E) NOTA