**Directions:** For this test, E) NOTA means “None of These Answers.”

1. Alex loves participating in spirit week at his school. For Decades Day, he and 3 other friends decide to wear leather jackets and bell-bottom jeans. If 3 leather jackets and 5 bell-bottom jeans cost $277.75 and 5 leather jackets and 3 bell-bottom jeans cost $328.25, how much does one leather jacket cost?

1. $25.25 B. $50.50 C. $75.75 D. $101.00 E. NOTA

2. White Castle is an American regional hamburger restaurant chain founded in 1921, generally credited as the country’s first fast-food burger chain. Jack stops at White Castle on his trip to Illinois and wants to make his special drink. To create his drink, Jack mixes Fanta peach, raspberry, and cherry soda together, 5 fl oz each. If Fanta peach is 38% sugar, Fanta raspberry is 40% sugar, and his mixed drink is 39% sugar, what percent of Fanta cherry is sugar?

1. 36% B. 37% C. 38% D. 39% E. NOTA

3. In his language arts class, Wesley is learning about American literature and needs to read two books. He chooses to read “The Great Gatsby” by F. Scott Fitzgerald and “A Farewell to Arms” by Ernest Hemingway. If the prices of the two books are the solutions to the quadratic below and “The Great Gatsby” is cheaper, how much does “A Farewell to Arms” cost?

x2 - 23x + 132 = 0

1. $10 B. $11 C. $12 D. $13 E. NOTA

4. Jason finally got tickets to a basketball game and has one extra. Since he does not know who to invite, he decides to give it to whoever can solve his math question. What is the minimum of the function written below? Rahul is excited for his chance to go to a basketball game and wants to win this ticket. Help him out! What answer should Rahul give if he wants to go to the game?

2x2 - 8x + 11

1. 3 B. 11 C. 27 D. 176 E. NOTA

5. Sitting in her room during quarantine has been awfully boring for Lindsay, so she decides to follow a Bob Ross tutorial on YouTube. However, she has to go eat dinner soon, so she can’t watch a video for too long. If the inequality below shows the amount of time, t (in min), she has to watch the video, how long is the longest video she can watch before dinner?

3 ≤ ≤ 7

1. 7.2 B. 26.5 C. 31.2 D. 39.4 E. NOTA

6. The history of baseball dates all the way back to the 18th century. As its popularity grew in the mid 1800’s, it became America’s beloved national pastime. Below is a set of the top 10 most home runs hit in a single season. What is the average of the median, mode, and range of the data?

{59, 61, 65, 66, 63, 73, 59, 64, 60, 70}

1. 45.5 B. 46 C. 46.5 D. 136.5 E. NOTA

7. Oh no! Lindsay forgot about her test in American History tomorrow. The test is on the Native American tribes. If the Navajo Tribe is located at (-1,-2) on the coordinate plane, and the Appalachian Tribe is located at (3,-5), what is the distance between the two tribes in units?

1. 5 units B. 6 units C. 7 units D. 11 units E. NOTA

8. Lindsay continues to study hard for her test. She learns that the Navajo Tribe lived in special houses called hogans, which were made primarily out of clay and wood. If the percentage of clay, by weight, in one hogan is 65%, and there is a total of 1400 pounds of wood used in a certain village, how much clay was used, in pounds?

1. 1400 B. 2600 C. 4000 D. 4200 E. NOTA

9. Charlie Parker was a famous American saxophonist and one of the most influential soloists in jazz. David is a beginner saxophonist that is looking forward to learning jazz. Before he can go to jazz band, he needs to get this last question correct in math class. What should he answer so he can go to jazz band?

Simplify:

1. (3b2 + 4c2)/2c B. (3b2 + 4c7)/2c6 C. (3b2 + 2)/2c D. (3b2 + 4c)/2c E. NOTA

10. Chicago style deep dish pizza is known for being outlandishly thick and high edge compared to a normal pizza. Cyrus loves making and eating pizzas but is very particular about the number of pepperonis. If the specific number is the number of distinct prime factors of 20020, how many pepperonis does Cyrus put on his pizzas?

1. 3 B. 4 C. 5 D. 7 E. NOTA

11. Soul food is an ethnic cuisine that is popular in the Southern United States. Dylan, Jose, and Nick are making 200 hush puppies for their school. If they work together, Dylan, Jose, and Nick can finish the job in 2 hours. If Dylan works by himself, he can finish the job in 5 hours. If Jose works by himself, he can finish the job in 6 hours. How long does it take Nick to finish the job if he works by himself?

1. 2 B. 3.5 C. 5.5 D. 7.5 E. NOTA

12. Soccer is the most popular sport in the world, and we have it in America too! Major League Soccer or MLS in past years was divided into two conferences each with 12 teams. The bottom 5 placements in one conference have already been decided. Given this, how many different outcomes of placings could occur in this conference?

1. 479,001,600 B. 39,916,800 C. 5040 D. 720 E. NOTA

13. The 4th of July or Independence Day is the celebration of our country's independence from Britain. On this day it is often customary to shoot off many fireworks. Alex decides to buy some fireworks and shoot them off. The fireworks follow a parabolic path and their height (in feet) can be tracked by the equation below where t = time in air in seconds:

When the firework explodes at time t=0, at what time(s) will the firework reach the height of 12 feet?

1. 2 seconds B. 6 seconds C. 2 seconds and 6 seconds

D. 1.5 and 6.5 Seconds E. NOTA

14. During the mid 1800s, gold was discovered in California which led to a huge migration of people to the area to try and strike riches. This soon became known as the California Gold Rush. April is able to pan for gold and find 7 grams of gold at every 4th hour. Dimitria is able to pan for gold and find 5 grams of gold at every 3rd hour. Tina is able to pan for gold and find 2 grams at every 90th minute. Assuming they all started at the same time, if gold is worth $50 per gram, who will make $3500 the fastest?

1. April B. Dimitria C. Tina D. 2 of them tie E. NOTA

15. Two American cities that are well known for their Jazz history are New Orleans and Chicago. If New Orleans is at the point (3, -8) and Chicago is at the point (4, 3), what is the midpoint of the line segment created by the two cities?

1. (-1.5, -2.5) B. (3.5, 5.5) C. (3.5, -2.5) D. (1.5, 5.5) E. NOTA

16. Cinco de Mayo, or May 5, marks Mexico’s victory over French troops at the Battle of Pueblo in 1862. However, in the United States, this holiday has become a day to celebrate Mexican food, culture, and tradition. Kaitlyn, Vera, Sandhya, and Surabhi are looking at a menu for Mexican cuisine and notice that the prices for the dishes create the sequence shown below. What would be the price of the next dish on the menu if it continues to follow the sequence?

6, 18, 9, 27, 13.5, 40.5, 20.25, …

1. 8/3 B. 17.25 C. 32.5 D. 60.75 E. NOTA

17. Alex is back again with more tie-dyes, paisley patterns, and floral designs. If he has 5 different shirts, 3 types of jackets, 4 types of pants, and 2 pairs of shoes, and one outfit consists of one shirt, one jacket, one pair of pants, and one pair of shoes, how many different outfit combinations can Alex make?

1. 21 B. 32 C. 55 D. 64 E. NOTA

18. Samuel Clemens, commonly known as Mark Twain, was a famous American author. He is credited by some as the “father of American literature” and has written popular books such as “The Adventures of Huckleberry Finn”. In his career, Mark Twain wrote x amount of books. If x is equal to the sum of the solutions to the equation below, how many books did Twain write in his career?

1. 12 B. 22 C. 27 D. 34 E. NOTA

19. American football is another popular sport in the United States. About 100 million people tune in every February to watch the Super Bowl alone. Bruce and his friends are playing a game of 7 on 7 and are choosing routes for their wide receivers. Auska runs a route that can be shown using the equation 3x - 5y = 15. If Kayden runs a route that is perpendicular to Auska’s what is the sum of the slopes of their routes?

1. -34/15 B. 16/15 C. 8/3 D. 34/15 E. NOTA

20. The Daytona 500 is a popular 500 mile NASCAR Cup Series motor race held annually in Daytona Beach, Florida. The Daytona International Speedway track is 2.5 miles long so the 500-mile race requires 200 laps to complete. If Deep is driving at 200 mph and is 20 laps in front of Dev, what is the slowest speed Dev can drive at and still be able to catch up to Deep in the next 50 laps (in mph)?

1. 230 B. 240 C. 270 D. 280 E. NOTA

21. The Louisiana Purchase was a deal between America and France in which America bought the land of Louisiana from France for 15 million dollars. In today’s money that would be worth 309 million dollars! Find the ratio of the worth of the purchase today vs the amount it was bought for in simplest form.

1. 103/5 B. 20 C. 104/5 D. 309/15 E. NOTA

22. Sandhya and Surabhi are racing in a circular track with a radius of 600 ft. Sandhya is halfway around the race track from the starting line and Surabhi is at the starting line. Sandhya travels 12π feet every second and Surabhi is traveling at 30π feet per second. Given this, who will reach the starting point first, and how far ahead will they be from the other racer?

1. Surabhi; 60π feet B. Sandhya; 30π feet C. Surabhi; 120π feet

D. They both reach the starting line at the same time E. NOTA

23. At the very first Thanksgiving, there were 73 pilgrims and 56 Native Americans. If each pilgrim brought enough food to make of a meal and each Native American brought enough food for of a meal. How many meals could the Native Americans and the Pilgrims make combined?

1. meals B. meals C. meals

D. meals E. NOTA

24. On the third Monday in February we celebrate Presidents’ Day. On this day, we commemorate two of our greatest Presidents in American history, George Washington and Abraham Lincoln. If George Washington weighed approximately 220 lbs and Abraham Lincoln weighed approximately 180 pounds, what is the ratio in simplest form of Washington’s weight in ounces, to Lincoln’s weight in ounces?

1. 22/18 B. 19/2 C. 11/9 D. 5/4 E. NOTA

25. John and Drew are going from house to house trying to raise money for the Boy Scouts of America. John goes to 62 houses and is able to get 4 dollars from each house. If Drew is able to raise 20 percent more than what John raised, find the total amount of money they raised together.

1. $248.00 B. $297.00 C. $545.60 D. $595.20 E. NOTA

26. Solve the following equation for x.

1. x = 3 B. x = 4 C. x = 5 D. Infinite solutions E.NOTA

27. Tracy is driving on the historic U.S Highway Route 66. Tracy is going 40 miles per hour

Before hearing someone honk at her for traveling too slow. Tracy quickly increases her speed from 40 to 75 miles per hour in the span of 14 seconds. What is the average rate of change of Tracy’s speed during these 14 seconds?

A. 2.5 mph/s B. 3 mph/s C. 3.5 mph/s D. 4 mph/s E. NOTA

28. The area of America is roughly 3,790,000 square miles. What is the area of America in scientific notation? All answers are in square miles.

1. 3.79 x B. 3.8 x C. 3.79 x D. 3.8 x E. NOTA

29. America’s flag design has always been changing with the new additions of states into the Union, but the border of the flag has always been the same rectangle shape. The height of the flag is equal to X units, where X solves the inequality, If the width of the flag is equal to 3 times the height, what is the area of the flag in square units?

1. 100 square units B. 300 square units C. 400 square units. D. 900 square units.

E. NOTA

30. America is sometimes referred to as a melting pot because of how America melts and embraces many other nationalities and unique cultures from across the world. On Monday, America had 300 new immigrants visit from other countries. If the amount of immigrants visiting each day increases by 10% from the previous day, how many new immigrants will be visiting on Thursday to the nearest whole?

1. 390 new visitors B. 393 new visitors C. 399 new visitors D. 402 new visitors

E. NOTA