

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

1. Given $x = 7$, evaluate the expression below.

$$5x^2 - 49 + x^3$$

- (A) 539 (B) 588 (C) 0 (D) 42 (E) NOTA

2. Vishnav loves to bet money on horse racing, and he wins every single time. Given the amount he made in each of his last 8 bets is listed below, find the range of the amounts Vishnav made in each of his last 8 bets.

$$1, 2, 3, 4, 5, 6, 98, 1$$

- (A) 0 (B) 1 (C) 4 (D) 14.5 (E) NOTA

3. Given that $(x, y) \& (a, b) = \frac{4x + 8y}{2a + 5y}$, evaluate the following expression:

$$(4, 6) \& (1, 6)$$

- (A) 32 (B) 2 (C) 1 (D) 64 (E) NOTA

4. Akash wants to go to the cinema and watch a movie. He wants it to be a special occasion and decides to buy as many popcorn bags as possible. If each bag costs 47 cents, how many can he buy if he brought \$46 to spend?

- (A) 46 (B) 47 (C) 97 (D) 98 (E) NOTA

5. Sina needs to buy a new pair of shoes. Luckily, his fashion designer, Hitesh, is in town. He offers Sina a pair of \$485 shoes, but at a discount. If Sina ends up receiving a discount of 60%, how much did he pay for the shoes?

- (A) 291 (B) 194 (C) 425 (D) 185 (E) NOTA

6. Sanjita loves eating donuts from Krispy Kreme. On Monday, she ate 6 donuts, Tuesday she ate 7 donuts, Wednesday she ate 8 donuts, Thursday she ate 4 donuts, Friday she ate 5 donuts, and 6 donuts on each Saturday and Sunday. Find the average number of donuts Sanjita ate that week.

- (A) 5.2 (B) 6 (C) 6.5 (D) 7 (E) NOTA

7. Express the sum of the following Roman Numerals as a whole number (Hint: L = 50):

$$LII, XXIV, LXXXII$$

- (A) 158 (B) 64 (C) 52 (D) 89 (E) NOTA

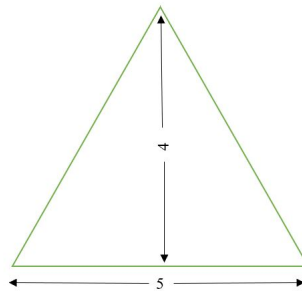
8. The area of a certain rectangle is 450. Tanusri and Rohan are working together in order to guess the dimensions of the rectangle. Help them by identifying which of the following options cannot be the length and width of this rectangle?

- (A) 10 by 45 (B) 30 by 15 (C) 40 by 50 (D) 75 by 6 (E) NOTA

9. Find the area of the following rectangle:



- (A) 20 in^2 (B) 25 in^2 (C) 9 in^2 (D) 1 in^2 (E) NOTA
10. Vamsi needs to watch as many episodes of the TV show Tallahassee 55 as possible in one week. He starts off by watching an average of two episodes a day, for 4 days. After a while, he gets tired and decides to slow down by watching 1.75 episodes a day for 2 days. If he wants to maintain an average of watching 2 episodes a day, how many does he need to watch on the last day?
- (A) 11.5 (B) 3.5 (C) 2.5 (D) 4 (E) NOTA
11. If the area of the triangle is $4x$, find the value of x^2 .



- (A) 2.5 (B) 10 (C) 6.25 (D) 100 (E) NOTA
12. Find the sum of the prime numbers in the following list:
- 1, 3, 2, 7, 4, 900, 875, 54, 9, 11, 89, 221
- (A) 58 (B) 112 (C) 688 (D) 689 (E) NOTA
13. Calculate
- $9^7 \div 9^3$
- (A) 729 (B) 21 (C) 6561 (D) 6981 (E) NOTA
14. What is 50% of 50% of 50? Expressed as a number in decimal form.
- (A) 13 (B) $12\frac{1}{3}$ (C) 50 (D) 12.5 (E) NOTA

15. Erin and Sabrina decide to have a race on who can climb up a ladder faster. Both have identical 30 meter ladders and decide to start from the ground and go all the way up to the top. They decide to have rounds, where each person goes up as high as they can in a standardized amount of time)Erin goes up 9 meters every round, but gets afraid of the height, and goes down two meters. Sabrina, on the other hand, fears nothing, and goes up 8 meters every round. If the winner is determined by who gets to the top first, who won the race, and in how many rounds?
- (A) Erin, 4 rounds (B) Sabrina, 5 rounds (C) Erin, 5 rounds (D) Sabrina, 6 rounds (E) NOTA

16. Aliana loves a singer by the name of Ariana Gomez and can win a free ticket to her concert if she evaluate the following expression correctly. Help Aliana go to the Ariana Gomez concert by evaluating the expression below.

$$6 + 30 \div 3 \cdot 11 - 1$$

- (A) 7 (B) 120 (C) 115 (D) 131 (E) NOTA
17. Anagha the trickster has kidnapped Shagun, a confused little girl. Anagha will only release Shagun if she is able to solve the following riddle:

If one Ria is equal to five Rheas, and three Rheas are equal to ten Riyas, how many Rias are equal to six Riyas?

Given there can be non-integer amounts of Rheas, Riyas or Rias, what answer should Shagun respond with so that she is released from Anagha's torture?

- (A) $\frac{3}{5}$ (B) $\frac{9}{5}$ (C) $\frac{3}{25}$ (D) $\frac{9}{25}$ (E) NOTA
18. Hitesh got his air-pods stolen by Alice. Alice decides to return them if he answers the following question:

8 consecutive even numbers add up to 72, find the product of the first and last number in the sequence.

If Hitesh ends up getting his air-pods back, what did he respond with?

- (A) 28 (B) 32 (C) 18 (D) 72 (E) NOTA
19. Find the 14th term in the sequence:

0, 1, 1, 2, 3, 5, 8, 13, 21 ...

- (A) 233 (B) 144 (C) 377 (D) 145 (E) NOTA
20. If a regular hexagon is made up of six equilateral triangles, find the area of a regular hexagon with side length of $2\sqrt{3}$. (Hint: The area of an equilateral triangle is $\frac{s^2\sqrt{3}}{4}$ where s is the side length.)
- (A) $12\sqrt{3}$ (B) $18\sqrt{3}$ (C) 6 (D) 8 (E) NOTA
21. Shreyas loves drawing stick-figures in his free time. One such stick figure had an abnormally large, perfectly circular head, which had a radius of $\sqrt{2}$ inches. What is the area, in square inches, of the head of the stick-figure?.
- (A) 4π (B) 4 (C) 2 (D) 2π (E) NOTA
22. Don't worry, you're almost done with the test! For this question, find the geometric mean of 2 and 8. (Hint: The geometric mean of a and b is \sqrt{ab} .)
- (A) 8 (B) 5 (C) 6 (D) 4 (E) NOTA

23. Rohan and Tanvi are on a long road trip together. Rohan enjoys annoying Tanvi with his music playlist that consists of 32 songs. Each song is exactly 4 minutes and 15 seconds long. The first song begins exactly when the road trip begins, the last song ends when the road trip ends, and there is no time wasted switching from one song to the next. All songs are played exactly once throughout the road trip. How long is their road trip in hours?
- (A) 128 (B) 136 (C) 480 (D) 608 (E) NOTA
24. Kushal needs to find a way to raise his history grade to a 90. In order to help him out, Lawrence decided to calculate Kushal's grade and tell him what he needs to do to get an A in the class. Kushal's previous test scores were; 95, 85, 65, 90, and 90. If he can get any score above 100 (extra credit is involved) and his grade is solely determined by his test scores, then what does Kushal have to get on his next test to get a 90 average?
- (A) 120 (B) 125 (C) 100 (D) 115 (E) NOTA
25. Even Vishal is finding a question on his brother's homework to be too difficult. Solve the following question correctly:
- Calculate the value you get when you square the number 25.
- (A) 620 (B) 625 (C) 50 (D) 25 (E) NOTA
26. How many different arrangements can be made of the letters in "RAYYAN"?
- (A) 24 (B) 90 (C) 120 (D) 720 (E) NOTA
27. Akash and Sina are currently in the middle of a Brawl Stars match. Currently they face each other and want to lower the other person's health to 0%. Sina currently has 35% health, and Akash has 50%. If Akash attacks every round with a 5% attack and Sina attacks every round with a 9% attack, who lowers the other one to 0% first, and after how many rounds? (Assume a "round" involves both Akash and Sina hitting each other at the same time, doing the above-mentioned amount of damage)
- (A) Akash, 5 rounds (B) Akash, 7 rounds (C) Sina, 6 rounds (D) Sina, 7 rounds (E) NOTA
28. Find the sum of the first ten prime numbers.
- (A) 129 (B) 101 (C) 100 (D) 98 (E) NOTA
29. Sina accidentally forgot to do his practice problems. He's got to do 30 problems in 4 hours. If he can complete one question per 12 minutes in the first two hours, how many questions per minute does he need to complete in the next two hours to finish his practice problems right on time (finishing the last question precisely at the 2 hour mark)?
- (A) 5 per minute (B) 24 per minute (C) 6 per minute (D) 4 per minute (E) NOTA
30. Congratulations! You have reached the end of the test. But there is one question left.
- What is $1 \div 0$?
- (A) 0 (B) 1 (C) -1 (D) Undefined (E) NOTA