**Directions : Choose the letter of the correct answer. You have 60 minutes to complete this 25 question test. Correct answers give you 5 points, answers left blank count one point, and incorrect answers are worth no points. In all cases NOTA) means none of these answers.**

1. 

**A) 0 B) undefined C) 2 D) -2 E) NOTA**

2. Princess Daisy loves to keep up with the latest fashion. If Daisy’s new hat is the shape of a cone with a height of 10 inches and a base of radius 3 inches, then what is the total volume of

her hat? Formula for volume of a cone: 

**A) 20π B) 30π C) 60π D) 90π E) NOTA**

3. Mario and Luigi want to have a fun day at the pool! They use a pipe to start filling the pool with water. However, it turns out that on that very day Princess Peach and Daisy have decided to play a prank on the boys, so they turn on (a separate pipe) to empty the pool. If Mario and Luigi’s pipe working alone can fill the pool in three hours, and Peach and Daisy’s pipe can empty it in five hours, how many hours will the boys have to wait for the pool to fill up?

**A) 7 B) 7.5 C) 8 D) 8.5 E) NOTA**

4. Simplify: 

**A)**  **B)**  **C)**  **D)**  **E) NOTA**

5. If Donkey Kong can eat 20 bananas per second, then how many bundles (100 bananas) can he eat in one minute?

1. **11 B) 12 C) 100 D) 1200 E) NOTA**

6. In a surprising turn of events Bowser kidnaps Mario instead of Princess Peach, leaving her to save our favorite plumber. Bowser gets a 10 second head start and runs towards his castle at a rate of 20 meters per second. The castle is 400 meters away. At least how fast (in meters per second) does Princess Peach have to run in order to meet Bowser at the castle?

**A) 26 B) 36 C) 40 D)** **45.42 E) NOTA**

7. Bowser is looking to build a new castle. He wants the base of his new abode to be a rectangle with a length that is five more than three times its width. In algebraic terms, what will the area of his castle be?

1. **5w2 + 3w B) 3w2 + 5w C) 3w2 – 5w**

**D) 5w2 – 3w E) NOTA**

8. Let 2x + y = 4 Find x + y.

5x + 3y = 1

* + - 1. **-25 B) 10 C) 18 D) 11 E) NOTA**

9. Luigi has a test to study for! If he goes eleven miles North and then sixty miles East to run away from his responsibilities, what is the shortest distance from where Luigi started to where he is now?

* + - 1. **58 B) 59 C) 60 D) 61 E) NO**

10. Oh no! Mario and Princess Peach find themselves situated on a giant Cartesian plane. Mario Spies a golden star at (5,8) and starts running towards it from his initial point at (4,3). Princess Peach, on the other hand, sees a diamond broach and also starts running towards it. If Princess Peach’s initial point was at the origin, and her path is perpendicular to that of Mario’s, find the equation, in slope intercept form, of her path towards the broach.

* + - 1. **y = 5x + 3 B)**  **C) y = -5x + 3**

**D)**  **E) NOTA**

11. Yoshi is playing a friendly game of catch. If he throws the ball in a perfect parabola with the equation y = x2 + 2x + 5, what is the maximum height that the ball will reach?

* + - 1. **3 units B) 4 units C) 5 units D) 7 units E) NOTA**

12. Simplify (x2 + 5x + 4) – (2x2 – 4x +3)

**A) x2 + 9x + 1 B) x2 + 9x + 7 C) -x2 + 9x + 1**

**D) -x2 + 9x + 7 E) NOTA**

13. If a2 + 2ab + b2 = 169, then a + b = ?

* + - 1. **11 B) 12 C) 13 D) 14 E) NOTA**

14. How many distinct prime factors does 6048 have?

**A) 3 B) 7 C) 8 D) 9 E) NOTA**

15. Solve for x: 3x + 5 = -7

* + - 1.  **B)**  **C)**  **D)**   **E) NOTA**

16. Wario wants to obtain some floobs for his brand new Flooberator 2000 ™. If one floob costs 7 foobs, 1 foob costs 2 froobs and 2 froobs cost eleven fwoobs, figure out how many floobs can Wario buy using all of his savings of 154 fwoobs.

**A) 1 B) 14 C) 22 D) 23 E) NOTA**

17. Waluigi refuses to tell his friends when his birthday is! After hours of groaning, Waluigi finally gives them a hint. “My birthday is five days after the day after the one which preceded this one.” Keeping in mind that today is a Monday, and that Waluigi’s friends want to get him a cake that must be ordered the day before his birthday, what day of the week should the cake be ordered on?

* + - 1. **Tuesday B) Thursday C) Friday D) Saturday E) NOTA**

18. 

**A)  B)  C) **

**D)  E) NOTA**

19. Bowser wants to build a Goomba creation factory, and he’s no stranger to the perils of capitalism. He knows that he needs to have a strategic business plan to stay afloat. If it costs him 3000 coins monthly for the machinery in his factory, and each Goomba he produces collects 50 coins a day, then what is the minimum number of Goombas that Bowser must make every month to ensure he breaks even?

* + - 1. **50 B) 55 C) 60 D) 75 E) NOTA**

20. If Mario and his friends got scores of 93, 85, 82, 78, and 100 on their last round of Launch the Toad, what was their mean score?

* + - 1. **87.5 B) 87.6 C) 87.7 D) 87.8 E) NOTA**

21. Expand : (13x + 16)(13x - 16)

**A) 169x2 – 225**

**B) 169x2 - 265**

**C) 169x2 + 265**

**D) 169x2 - 256**

**E) NOTA**

22. Solve the inequality : 

**A) x > 6 B) x > -6 C) x < 6 D) x < -6 E) NOTA**

23. Simplify, assuming none of the variables are zero : 

**A)  B) x33y15z2 C)  D) x34y15z20 E) NOTA**

24. If f(x) = 5x + 7 and g(x) = x2 – 3, find f(g(3)).

* + - 1. **5 B) 12 C) 26 D) 37 E) NOTA**

25. The answer to this question is B.

* + - 1. **Whoops, not this one.**
      2. **Choose me!**
      3. **Nah you missed it, it’s back there.**
      4. **Wow, you’re really lost… You know we said that answer’s “B” right? Not D.**
      5. **NOTA (Don’t pick this one. Come on. You’re smarter than that.)**

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