

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

- Evaluate: $1 + 2^2 - [7 - (8)(2) - (-5)]^0$
 (A) 4 (B) 5 (C) 6 (D) 9 (E) NOTA
- A number n is 5 less than 7 times another number a , and the sum of 3 times n and 2 times a is equal to 8. What is the sum of a and n ?
 (A) 2 (B) 3 (C) 1 (D) 4 (E) NOTA
- Sumkat told Carolyn that the color orange was named after the fruit, but Carolyn doesn't believe him. In order to convince Carolyn that he's telling the truth (or not), Sumkat tells her to answer a question for him. If the answer is greater than the positive value of $\sqrt{441}$, then he is not telling the truth. Otherwise, he is telling the truth. If the problem that Sumkat gave Carolyn is "What is the Greatest Common Factor of 55 and 76", was Sumkat telling the truth, and is the answer odd or even?
 (A) Yes, odd (B) No, odd (C) Yes, even (D) No, even (E) NOTA
- Bridget can pirouette (spin) 30 times in 1 minute (Yeah, she's pretty good). However, after spinning 77 times she gets dizzy. How many seconds can Bridget spin before she gets dizzy?
 (A) 231 (B) 2.57 (C) 38.5 (D) 154 (E) NOTA
- Let the function $a@b$ be the sum of the number of letters in the word form of a and the number of letters in the word form of b divided by a times b . For example $(6@5 = \frac{(3+4)}{6} * 5)$. What is the value of $7@(3@4)$? Express your answer as an improper fraction.
 (A) $\frac{12}{1}$ (B) $\frac{147}{16}$ (C) $\frac{132}{7}$ (D) 1 (E) NOTA
- Express $\frac{4^2 + (3 - 9)}{5 \left(3 + 38 \left(\frac{1}{2} \right) \right)}$ as a mixed number.
 (A) $1\frac{19}{25}$ (B) $\frac{44}{25}$ (C) $\frac{\left(\frac{10}{5}\right)\left(\frac{41}{2}\right)}{5}$ (D) $2\frac{3}{11}$ (E) NOTA
- Bro-Mans is a boss. If he walks like a boss on the line $6y = -2x + 7$, and stops like a boss when he's standing like a boss on the x axis, at what coordinate point does he stop like a boss?
 (A) $\left(0, \frac{7}{2}\right)$ (B) $\left(\frac{7}{2}, 0\right)$ (C) $\left(0, \frac{7}{6}\right)$ (D) $\left(\frac{7}{6}, 0\right)$ (E) NOTA
- Using information from question 7, how far did Bro-Mans walk like a boss if he started to walk like a boss at the point $\left(0, \frac{7}{6}\right)$?
 (A) $\frac{7\sqrt{10}}{6}$ (B) $\frac{21}{2}$ (C) 1 (D) 0 (E) NOTA

9. Simplify $\frac{(5x^3y^{-3})(4^2x^{-2}y^2)(-3x^1y^{-1})}{(2x^0y^0)(x^1y^1)}$
- (A) $\frac{30x^3}{y}$ (B) $-\frac{30x}{y^3}$ (C) $\frac{120x}{y^3}$ (D) $-\frac{120x}{y^3}$ (E) NOTA
10. Machamp can punch 1000 times per second. If it takes 5,480 punches to wake up a Snorlax and there are 50 sleeping Snorlaxes in the room, how many minutes will it take for Machamp to wake up all of the Snorlaxes? Round to the nearest tenth.
- (A) 4.6 (B) 10 (C) 4.5 (D) 5.48 (E) NOTA
11. If $f(x) = 3x^2 + 5x - 2$ then find the value of $f(4)$
- (A) 48 (B) 66 (C) 68 (D) 70 (E) NOTA
12. What is $\frac{J^2}{G}$ if $JULIET = GRACE$?
- (A) $G \frac{(ACR)^2}{(ILTU)^2}$ (B) $\frac{GRACE}{ULIET}$ (C) $\frac{ACGR}{ILTU}$ (D) $\left(\frac{GRACE}{ULIET}\right)^2$ (E) NOTA
13. Find the slope of the line perpendicular to the line that goes through the points (6,20) and (12,11)
- (A) $-\frac{3}{2}$ (B) $\frac{2}{3}$ (C) $\frac{11}{12}$ (D) $\frac{20}{6}$ (E) NOTA
14. Ryan R. and Ryan L. are good friends, but sometimes people get them mixed up. Right now, both Ryan and Ryan have a mean score of 94 for ten of their Math tests, but Mrs. Funk found out that she had mixed up one of their grades. If on one test Ryan R. actually got a 94, but was given Ryan L.'s 98, by how much does Ryan L.'s average grade change when the grades are returned to normal?
- (A) 0.2 (B) 4 (C) 0.3 (D) 0.5 (E) NOTA
15. A right triangle has an acute angle that is $3x^\circ$. What is the largest possible integer value of x ?
- (A) 29 (B) 30 (C) 28 (D) 31 (E) NOTA
16. What is the radius of a circle that has a circumference of 16?
- (A) $\frac{8}{\pi}$ (B) 8 (C) $\frac{64}{\pi}$ (D) 8π (E) NOTA
17. Completely factor the following: $(8x^3 + 64)$
- (A) $8(x+2)(x^2 - 2x + 4)$
 (B) $8(x-2)(x^2 + 2x + 4)$
 (C) $8(x-2)^2(x+2)$
 (D) $(2x+4)(4x^2 - 8x + 16)$
 (E) NOTA

18. What values of x satisfy $|x - 4| < 6$?
- (A) $x > -2$ (B) $-10 < x < 10$ (C) $x < -2$ or $x > 10$ (D) $-2 < x < 10$ (E) NOTA
19. Logan found a muffin in a basket. When Logan measures the top circular part of the muffin, he finds that it has a radius of 3 inches. What is the approximate circumference of the muffin's top, in inches?
- (A) 6π (B) 9π (C) 3π (D) 12π (E) NOTA
20. Given $42^m = 2^n 3^o 7^p$, what is the value of $o + p$?
- (A) m (B) $n - o + p$ (C) $m - n$ (D) $2m$ (E) NOTA
21. Raymond likes to wield great swords. If he's only holding one great sword, his attack rating is 150 points. If he's holding two great swords, he can hit you 85% of the time in battle. If Raymond can hit you 50% of the time with one great sword, by many points does Raymond's attack rating increase when he wields a second great sword if the attack rating is simply the percentage of 300?
- (A) 35 (B) 255 (C) 105 (D) 300 (E) NOTA
22. What is the product of the prime factors of 2310?
- (A) 120 (B) 720 (C) 210 (D) 0 (E) NOTA
23. Pamela likes only composite numbers. What subset of the following set of numbers should I give her so that she likes every number in the set?
- $\{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$
- (A) $\{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$ (B) $\{1, 4, 6, 8, 9, 10\}$ (C) $\{2, 3, 5, 7\}$ (D) $\{4, 6, 8, 9, 10\}$ (E) NOTA
24. Find the sum of the mean, median, and range of the set of numbers given in question 23. Round values to the nearest tenth.
- (A) 19.2 (B) 20.0 (C) 19.0 (D) 18.9 (E) NOTA
25. Baaaaaaah the sheep is fenced into a rectangular plot. The length of the fence is half of the width. If the perimeter of the plot is 18 feet, how much space does baaaaaaah have? Answers given in square feet.
- (A) 3 (B) 6 (C) 18 (D) 24 (E) NOTA
26. If 1 ShamWOOHOO soaks up 64 gallons of water, and Charlie Lake is 100,064 gallons, how many ShamWOOHOOs do you need to soak up half of Charlie Lake?
- (A) 1564 (B) 1563.5 (C) 781.75 (D) 782 (E) NOTA

27. Jenny is making a necklace to wear for homecoming. Her necklace has one bead of each shape: hexagon, octagon, pentagon, and heptagon. Assuming none of the sides of any shape are touching, how many total sides are on the ornament of Jenny's necklace?
- (A) 35 (B) 24 (C) 20 (D) 26 (E) NOTA
28. John is employed at a Cinnabon shop called Fraser's: The Cinnaman's Place. For every 10 business days that John works, he gets \$20.00. At first, John worked for 4 weeks (A week consists of 5 business days.) But not long afterwards, Bruce, John's boss, noticed that John has been AWOL (Absent With Out Lease, or excuse). After 15 days of John' absence, Bruce decides that for every day that John is AWOL, John will owe him \$0.25. John finally comes back 47 weeks after Bruce makes this decision. Assuming John still gets paid for his time working prior to his absence, and Bruce's fee includes John's 15 business days and 47 weeks of absence, how much money does John still owe Bruce?
- (A) \$18.75 (B) \$22.50 (C) \$21.25 (D) \$17.50 (E) NOTA
29. What property is demonstrated in the following equation: $(A * B) = (B * A)$
- (A) Distributive Property
(B) Identity Property
(C) Commutative Property of Association
(D) Associative Property of Communication
(E) NOTA
30. Diego is surfing at the beach. As a wave brings him to shore, he notices that when standing, his shadow is 8 feet long, even though he is 6 feet tall. How tall is his friend Chet, if Chet's shadow at the same time and place is 7.2 feet long? Answers given in feet.
- (A) 9.6 (B) 6.7 (C) 5.3 (D) 5.4 (E) NOTA