

For all questions, choice E: NOTA means that none of the given answers is correct.

- Evaluate $\frac{1 + 2(-3 + 4)^2 - 5}{2}$.
 (A) 1 (B) 3 (C) -2 (D) -1 (E) NOTA
- Nidhi has 5 quarters, 3 nickels, 1 dime, and 1 penny. How much money, in dollars, does she have?
 (A) \$1.51 (B) \$1.36 (C) \$1.41 (D) \$1.50 (E) NOTA
- Steve buys 8.6 oz of frozen yogurt, Kevin buys 6.5 oz, and Steve's Pusheen Cat buys 11.9 oz. What is the arithmetic mean of the three yogurt weights?
 (A) 9.3 oz (B) 8.7 oz (C) 9 oz (D) 8 oz (E) NOTA
- Find the slope line that is perpendicular to the line that goes through the points (5, 12) and (10, 24).
 (A) $\frac{12}{5}$ (B) $\frac{-5}{12}$ (C) $\frac{5}{12}$ (D) $\frac{-12}{5}$ (E) NOTA
- Ishwarya is conducting a survey to compare heights. She's 54", Bhavana is 62", Akshita is 61", Craig is 69", Sonia is 66", Andrew is 68", and Sathwik is 68". When each height value is put in order from least to greatest, whose height is the median?
 (A) Sonia (B) Bhavana (C) Ishwarya (D) Craig (E) NOTA
- Alex is making a mold of his perfectly hemispherical right cheek which measures 3 centimeters in radius. What is the volume of his cheek, given that the formula for the volume of a sphere is $\frac{4\pi r^3}{3}$ (where r represents the length of the radius)?
 (A) $36\pi cm^3$ (B) $72\pi cm^3$ (C) $18\pi cm^3$ (D) $24\pi cm^3$ (E) NOTA
- Simplify $\frac{4}{3 + \frac{2}{1 + \frac{6}{5}}}$.
 (A) $\frac{146}{5}$ (B) $\frac{83}{15}$ (C) $\frac{5}{146}$ (D) $\frac{44}{43}$ (E) NOTA
- If $4a = 8 + 2b$, solve for b in terms of a .
 (A) $b = 2a - 4$ (B) $b = \frac{a-4}{2}$ (C) $b = 2a + 4$ (D) $b = 8a - 16$ (E) NOTA
- If $|x - 2| + 6 \leq 17$, what is the least possible value of x ?
 (A) -9 (B) 0 (C) -13 (D) -11 (E) NOTA
- The Raiders have won 8 of their first 10 games. How many of their next 40 games must they win in order to have a total of 90% wins?
 (A) 13 (B) 28 (C) 12 (D) 37 (E) NOTA
- Annie bought 9 mangos and 5 bananas for \$8. Wanting more, she then buys 2 mangos and 6 bananas for \$3. How much does 3 mangos cost given that Annie paid the same amount per fruit for each purchase?
 (A) \$0.75 (B) \$1.25 (C) \$2.25 (D) \$1.75 (E) NOTA

12. How many distinct positive integral factors does the number 16 have?
(A) 5 (B) 10 (C) 6 (D) 4 (E) NOTA
13. Expand $(x + 2)(x + 3)$.
(A) $x^2 + 2x + 3$ (B) $x^2 + 5x + 6$ (C) $x^2 + 3x + 2$ (D) $x^2 + 6x + 5$ (E) NOTA
14. Find the number of distinct arrangements of the letters in the word ABSCISSA.
(A) 5040 (B) 280 (C) 1680 (D) 3360 (E) NOTA
15. Joyce can stuff a plushie in 5 minutes and Cecilia can stuff a plushie in 6 minutes. How long will it take them to stuff a plushie together, assuming they work at constant rates?
(A) $\frac{30}{11}$ minutes (B) $\frac{32}{17}$ minutes (C) $\frac{11}{2}$ minutes (D) $\frac{15}{4}$ minutes (E) NOTA
16. Larry follows the alpacking-rule which states: one must bring 2 shirts for every 1 pair of pants and 3 lollipops for every 1 shirt. If Larry packs 4 pairs of pants, how many lollipops does he bring?
(A) 12 (B) 8 (C) 24 (D) 6 (E) NOTA
17. Yasemin sets a two character locking code on her bag. If the code is punched in wrong, the bag will send an electrical shock to the individual who punched it in. The first character can be any letter from A-C, inclusive, and the second character can be any positive integer from 1-4, inclusive. Given that each code a person tries is distinct, what is the greatest number of shocks a person may suffer before unlocking Yasemin's bag?
(A) 7 (B) 12 (C) 11 (D) 14 (E) NOTA
18. If $c(x) = 6x + 8$, $h(x) = x - 2$, $u(x) = \frac{x}{6}$, $b(x) = x - 1$, then find $b(u(h(c(0))))$.
(A) -1 (B) 0 (C) 6 (D) 1 (E) NOTA
19. Jessica needs her purple key. There are 5 blue keys, 7 pink keys, and 1 purple key in a jar. All keys have an equal chance of being chosen. If Jessica grabs one randomly, what is the probability that she chooses the purple key on her second attempt without replacement?
(A) $\frac{144}{169}$ (B) $\frac{1}{33}$ (C) $\frac{12}{169}$ (D) $\frac{1}{156}$ (E) NOTA
20. Tommy uses 27 mini cubes to make one large cube. He completely submerges the large cube into paint. How many mini cubes have only one side coated with paint?
(A) 27 (B) 4 (C) 8 (D) 1 (E) NOTA
21. If $(x + y) = 8$ and $(x - y) = 15$, find $2xy + 2x^2$.
(A) 225 (B) 120 (C) 64 (D) 184 (E) NOTA
22. If $n = 5$, evaluate $\frac{(n + 2)!}{(n - 1)!}$.
(A) 5040 (B) 210 (C) 120 (D) 720 (E) NOTA
23. When $x = \sqrt{2 - \sqrt{3}}$ and $y = \sqrt{2 + \sqrt{3}}$, what is $\frac{xy}{x^2 + y^2}$ equal to?
(A) 1 (B) $\frac{1}{2}$ (C) $\frac{1}{4}$ (D) $\frac{1}{5}$ (E) NOTA

24. The first row of a movie theater has 10 seats. Each successive row has two more seats than the previous. What is the number of seats in the theater if there are 7 rows?
- (A) 112 (B) 92 (C) 136 (D) 156 (E) NOTA
25. Car A travels at 30 mph while Car B travels at 20 mph. Cars A and B are x miles apart and head towards each other at consistent rates. If Car B has a 10 minute head start, then the two cars will crash in exactly one hour after Car B has started. What is x in miles?
- (A) 42 (B) 50 (C) 45 (D) 63 (E) NOTA
26. $\frac{7}{13}$ is expressed in decimal form. Find the 44th digit on the right of the decimal point.
- (A) 3 (B) 5 (C) 8 (D) 4 (E) NOTA
27. There are 9 terms in an arithmetic sequence. If the first term is 9 and the last term is 33, then what is the sum of all the terms in the sequence?
- (A) 216 (B) 378 (C) 189 (D) Not Enough Information (E) NOTA
28. Kavitha walks into a room with 7 people (including herself). Each person shakes hands with every other person until they have shaken hands with everyone else once. How many handshakes will occur?
- (A) 28 (B) 56 (C) 42 (D) 21 (E) NOTA
29. Tony chooses his first term to be 12. To produce each succeeding term, he rolls a dice. If the value on the top face of the dice is even, he divides the previous term by 4 and adds 3. If the value is odd, he multiplies the previous term by $\frac{2}{3}$ and adds 1. What is the probability that the 3^{rd} term of Tony's sequence is not an integer?
- (A) $\frac{3}{4}$ (B) $\frac{1}{4}$ (C) 0 (D) $\frac{1}{2}$ (E) NOTA
30. Find the units digit of $1! + 3! + 5! + 7! + \dots + 97! + 99!$
- (A) 1 (B) 3 (C) 5 (D) 7 (E) NOTA