



Speed Math

Test #342/361

Name: _____

ID Number: _____

School: _____

Division (circle one):

Mu Alpha Theta Sponsor

- _____ 1. What is the sum of the digits of 2017?
- _____ 2. Mulch is on sale – 3 bags for \$10. Russell needs to cover a 12 ft by 5 ft section of his yard with mulch. If each bag covers 10 square feet, how much will it cost him to cover this section of his yard with mulch?
- _____ 3. Find the area enclosed by a regular hexagon with side length 4.
- _____ 4. The line segment with endpoints $(7 - c, d - 5)$ and $(3c + 13, d - 1)$ has midpoint $(4, 7)$. Find the product cd .
- _____ 5. Katie has 4 cups of a cleaning solution that is 25% vinegar, .5% lemon oil, and the remaining portion is water. If she wants to make this solution 50% vinegar by adding pure vinegar, how many cups of vinegar should she add?
- _____ 6. What is the determinant of $\begin{bmatrix} 132 & -24 \\ -24 & 132 \end{bmatrix}$?
- _____ 7. How many occurrences of the digit 3 appear in the integers from 4 to 94, inclusive?
- _____ 8. Find the radius length of the circle with equation $x^2 + y^2 - 2x + 4y - 8 = 0$.
- _____ 9. Find the 12th term in the sequence whose first two terms are 2 and 5 and each term beyond the second is the sum of the immediate two preceding terms.
- _____ 10. What is the distance from the point (6,17) to the x -axis?
- _____ 11. Evaluate: $5!4!3!2!1!$
- _____ 12. Evaluate: $(1 - i)^6$
- _____ 13. An equilateral triangle has apothem of length $2\sqrt{3}$. What is the area enclosed by the triangle?
- _____ 14. A square circumscribes a circle whose enclosed area is 25π . Find the perimeter of the square.
- _____ 15. If a and b are positive integers such that $a^2 - b^2 = 2017$, find the value of $a^2 + b^2$.
- _____ 16. If c and d are the two roots of the polynomial $x^2 - \frac{5}{3}x + \frac{4}{9}$, find the value of $c^3 + d^3$.
- _____ 17. If x is three times y , and if z is 2 times w , find the ratio of xw to yz (as a fraction).
- _____ 18. Find the distance between the intercepts of the line with equation $y = 2x + \frac{24}{7}$.
- _____ 19. The degree measures of the interior angles of a hexagon are in the ratio 3:4:5:6:7:8. To the nearest degree, find the number of degrees in the 3rd largest angle.
- _____ 20. I have 3 apples, 4 oranges, and 2 bananas, and I am making a fruit salad with three of these 9 fruits in it. How many distinct salads can I make? Two salads are distinct if they use different fruits or if the numbers of fruits of a particular type in two salads are different.
- _____ 21. Solve, and write your answer in interval notation: $\frac{27 - 54x}{27x + 54} \geq 1$
- _____ 22. Convert $\left(\frac{5\pi}{3}\right)^\circ$ to radians.
- _____ 23. Sarah just beat Level 934 of Candy Crush. If levels are numbered as increasing consecutive integers beginning with 1, and if it takes Sarah an average of 13 minutes to beat one level, how long has Sarah played Candy Crush? Give your answer in hours and minutes, where the number of minutes is greater than or equal to 0 and less than 60.
- _____ 24. Evaluate: 11^8
- _____ 25. A drawer containing only single-color socks is such that the probability of drawing two red socks from the drawer is $\frac{5}{14}$. What is the minimum number of socks the drawer could contain?