## 2007 Pizitz Mathematics Tournament <br> Seventh Grade Test

1. Solve. $5(2 y+3)-3 y=-2(4 y+1)-13$
A. 0
B. -1
C. 1
D. -2
E. NOTA
2. How many ways can the letters in the name CHILTON be arranged?
A. 360
B. 720
C. 5040
D. 2025
E. NOTA
3. $252_{6}+334_{5}=$ $\qquad$ 4
A. $12_{4}$
B. $222_{4}$
C. $3012_{4}$
D. 32024
E. NOTA
4. Find the distance between two points whose coordinates are $(2,2)$ and $(4,6)$.
A. $6 \sqrt{5}$
B. $2 \sqrt{5}$
C. $4 \sqrt{5}$
D. $2 \sqrt{7}$
E. NOTA
5. Spongebob wants to find the volume of a Krabby Patty. The cylindrical patty has a radius of 2 cm and a height of 1 cm . Find the volume of 3 patties using 3.14 for pi.
A. $37.68 \mathrm{~cm}^{3}$
B. $12.56 \mathrm{~cm}^{3}$
C. $25.12 \mathrm{~cm}^{3}$
D. $50.24 \mathrm{~cm}^{3}$
E. NOTA
6. $56 \mathrm{miles} /$ hour $=$ $\qquad$ feet/minute
A. $4928 \mathrm{ft} / \mathrm{min}$
B. $1643 \mathrm{ft} / \mathrm{min}$
C. $5914 \mathrm{ft} / \mathrm{min}$
D. $14784 \mathrm{ft} / \mathrm{min}$
E. NOTA
7. Find the opposite of the multiplicative inverse of the reciprocal of three squared.
A. $1 / 9$
B. 9
C. $-1 / 9$
D. -9
E. NOTA
8. Find the area of an equilateral triangle with a side of 12 cm .
A. $36 \sqrt{3} \mathrm{~cm}^{2}$
B. $18 \sqrt{3} \mathrm{~cm}^{2}$
C. $36 \sqrt{2} \mathrm{~cm}^{2}$
D. $18 \sqrt{2} \mathrm{~cm}^{2}$
E. NOTA
9. Find the area of the figure.
A. 56 sq. units
C. 136 sq. units
B. 264 sq. units
D. 132 sq. units
E. NOTA

10. Find the measure of one exterior angle of a regular octagon.
A. $75^{\circ}$
B. $60^{\circ}$
C. $45^{\circ}$
D. $30^{\circ}$
E. NOTA
11. Evaluate. $4+\frac{3}{2+\frac{1}{1+\frac{3}{4}}}$
A. $115 / 7$
B. $83 / 4$
C. $51 / 6$
D. $44 / 5$
E. NOTA
12. A square and a circle have the same area. Find the circumference of the circle if the area of the square is $16 \pi$.
A. $2 \pi$
B. $4 \pi$
C. $6 \pi$
D. $8 \pi$
E. NOTA
13. Jerry can work the problem $1+1$ in $5 / 12$ of a day. It takes Ching 900 minutes to do the same problem. How many hours does it take them to do the problem together?
A. $1 / 6$
B. 6
C. 7.5
D. 9
E. NOTA
14. Find the sum of the LCM of 12 and 16 and the GCF of 23 and 92.
A. 71
B. 49
C. 65
D. 96
E. NOTA
15. Mrs. Mills bought a dress that was regularly $\$ 87$ on sale at $33 \frac{1}{3} \%$ off. She had a coupon for an additional $10 \%$ off. If the tax rate was $8.5 \%$, what was the total?
A. $\$ 56.92$
B. $\$ 56.99$
C. $\$ 48.42$
D. $\$ 56.64$
E. NOTA
16. If $\mathrm{a}=2$ and $\mathrm{b}=-3$, evaluate $\frac{(a b)^{-2}}{a^{-3}}$.
A. -6
B. $2 / 9$
C. $9 / 32$
D. $-1 / 6$
E. NOTA
17. Given $2 a+12 b=18$ and $3 a-2 b=7$, find $a+b$.
A. 8
B. 13
C. 11
D. 6
E. NOTA
18. Find the product of the median and the mean of the following: $-20,16,2,-6,8,12$.
A. 8
B. 10
C. 12
D. 14
E. NOTA
19. Given the sequence $-12,-7,-2,3,8, \ldots$, find the $100^{\text {th }}$ term.
A. 398
B. 456
C. 483
D. 512
E. NOTA
20. The angles in a triangle are in the ratio of 4:3:2. The angles of a quadrilateral are in the ratio of 6:5:4:3. Find the difference in degrees between the second largest angle of the quadrilateral and the middle-sized angle of the triangle.
A. $10^{\circ}$
B. $20^{\circ}$
C. $30^{\circ}$
D. $40^{\circ}$
E. NOTA
21. Cody the dog likes to sleep on a triangular rug. What are the odds that he will sleep on the unshaded region tonight?
A. 1 to 2
C. 1 to 3
B. 2 to 1
D. 3 to 1
E. NOTA

22. Find the product of the second smallest perfect number and the middle number on the $5^{\text {th }}$ row of Pascal's Triangle.
A. 200
B. 36
C. 128
D. 98
E. NOTA
23. Twenty-three people like Dr. Pepper. Twenty-four people enjoy Coca-Cola. Thirty-seven have a taste for Sprite. Seventeen like Dr. Pepper and Coca-Cola, while nine people enjoy Sprite and Coca-Cola. Eight people have a taste for Dr. Pepper and Sprite. Six people are fans of all three sodas. If there are sixty people in all, how many are outcasts who hate all three?
A. 2
B. 3
C. 4
D. 6
E. NOTA
24. Find the area of the figure bounded by $x=0, y=0, x=-3$, and $y=\frac{2}{3} x+4$.
A. 6
B. 9
C. 18
D. 24
E. NOTA
25. Find $\mathrm{A}+\mathrm{B}$, if:
the increase in the surface area of a sphere of radius 4 when the radius is increased by $25 \%=\mathrm{A} \pi$ sq. units, and the increase in the volume of a cylinder with radius 15 and height 10 when the radius is increased by $20 \%$ and the height lowered by $10 \%=\mathrm{B} \pi \mathrm{cu}$. units.
A. 666
B. 702
C. 792
D. 828
E. NOTA

Tiebreakers Write each tiebreaker answer in the top margin on the back of the scantron.
TB1. Find the number of triangles in the figure.


TB2. A cube has a volume of $Y$ cubic units and a surface area of $Y$ square units. Find the length of an edge of the cube.

TB3. Find the slope of the line with the equation $5 x-3 y=-6$.

