## 2007 Pizitz Mathematics Tournament Seventh Grade Test

1.	Solve. $5(2y+3) - 3y =$	-2(4y+1)-13						
	A. 0	B. –1	<b>C.</b> 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 <sub>6</sub> + 334 <sub>5</sub> =	4						
	A. 12 <sub>4</sub>	<b>B</b> . 222 <sub>4</sub>	C. 3012 <sub>4</sub>	D. 3202 <sub>4</sub>	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. $37.68 \text{ cm}^3$	B. $12.56 \text{ cm}^3$	C. $25.12 \text{ cm}^3$	D. $50.24 \text{ cm}^3$	E. NOTA			
6.	56 miles/hour =	feet/minute						
	A. 4928 ft/min	B. 1643 ft/min	C. 5914 ft/min	D. 14784 ft/min	E. NOTA			
7.	Find the opposite of the multiplicative inverse of the reciprocal of three squared.							
	A. $\frac{1}{9}$	B. 9	C. $-\frac{1}{9}$	D. –9	E. NOTA			
8.	5. Find the area of an equilateral triangle with a side of 12 cm.							
	A. $36\sqrt{3}$ cm <sup>2</sup>	B. $18\sqrt{3} \text{ cm}^2$	C. $36\sqrt{2}$ cm <sup>2</sup>	D. $18\sqrt{2}$ cm <sup>2</sup>	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	20				
10	10. Find the measure of one exterior angle of a regular octagon.							
	A. 75°	B. 60°	C. 45°	D. 30°	E. NOTA			

11. Evaluate. 4 + –	$\frac{3}{2 + \frac{1}{1 + \frac{3}{4}}}$						
A. 11 5/7	B. $8\frac{3}{4}$	C. 5 $\frac{1}{6}$	D. $4\frac{4}{5}$	E. NOTA			
2. A square and a circle have the same area. Find the circumference of the circle if the area of the square is $16\pi$ .							
Α. 2π	B. 4 <i>π</i>	C. 6 <i>π</i>	D. 8 <i>π</i>	E. NOTA			
13. Jerry can work the problem $1 + 1$ in $\frac{5}{12}$ 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. $\frac{1}{6}$	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 $^{1}/_{3}$ % 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			
6. If $a = 2$ and $b = -3$ , evaluate $\frac{(ab)^{-2}}{a^{-3}}$ .							
A6	B. $\frac{2}{9}$	C. $\frac{9}{32}$	D. $-\frac{1}{6}$	E. NOTA			
17. Given $2a + 12b = 18$	7. Given $2a + 12b = 18$ and $3a - 2b = 7$ , find $a + b$ .						
A. 8	B. 13	C. 11	D. 6	E. NOTA			
8. 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			
9. Given the sequence $-12, -7, -2, 3, 8,$ , find the $100^{th}$ 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° B. 20° C. 30° D. 40° 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<sup>th</sup> 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 A + B, if:

the increase in the surface area of a sphere of radius 4 when the radius is increased by  $25\% = A\pi$  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  $10\% = B\pi$  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 5x 3y = -6.