



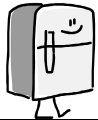

Rocket City Math League

Explorer (Pre-Algebra) Test

2008-2009
Round 1

Answers must be written inside the adjacent answer boxes. All answers must be written in exact, reduced, simplified, and rationalized form. All decimals and mixed numbers must be written as improper fractions unless otherwise specified. **No calculators, books, or other aides may be used.**

You will be allowed 45 minutes to complete the test.

<p>1. At Jerome's Pizza Dome, a pizza is made from 0.5 pounds of dough, 1 pound of sauce, and 1.5 pounds of cheese. If a pound of dough costs \$3, a pound of cheese costs \$4, and a pound of sauce costs \$6, then how many dollars does it cost Jerome's Pizza Dome to make 8 pizzas? (1 point)</p>	
<p>2. The temperature of the refrigerator at Jerome's Pizza Dome was -11°F at 9AM. It increased to 54°F by 2PM. How many $^{\circ}\text{F}$ did the temperature of the refrigerator increase between 9AM and 2PM? (1 point)</p>	
<p>3. Taj is delivering pizzas to a party in Lacitamehtam, the capital city of Pluto. If he drives 5 miles north and 12 miles east from Jerome's Pizza Dome through downtown Lacitamehtam to deliver the pizzas, what is the shortest distance from the party back to the store (in miles)? (1 point)</p>	
<p>4. A family has a coupon for 20% off any pizza purchase of \$25 or more at Jerome's Pizza Dome. If they order \$31 worth of pizza, then how much do they pay in dollars and cents, assuming they use the coupon? (1 point)</p>	
<p>5. Yesterday an anchovy and spinach pizza was priced at \$4.00. The same pizza is priced at \$6.50 today. What is the percent increase for this pizza from yesterday's price to today's price? (Give answer in terms of percent, rounded to the nearest tenth of a percent) (2 points)</p>	
<p>6. A pizza slice is cut in the shape of an obtuse triangle, with one angle measuring 98.7° and another angle measuring 51.2°. What is the sum of the digits in the measure of the slice's third angle when it is written as a decimal and in degrees? (2 points)</p>	
<p>7. Khalid bought a pizza to share with his friends. He eats $\frac{3}{8}$ of his pineapple pizza, Salvatore eats $\frac{5}{24}$ of Khalid's pineapple pizza, and Jaqueline eats $\frac{7}{24}$ of Khalid's pineapple pizza. John eats the remainder of Khalid's pineapple pizza. What fraction of the pizza does John eat? (2 points)</p>	
<p>8. The profit, in dollars, made on Fridays can be represented by the expression $a^2 + 2b - 3$ where a is the number of customers Jerome's Pizza Dome had on that day, and b is the number of pizzas sold on that day. On Friday, 17 customers came, and they each bought 3 pizzas. How many dollars of profit were made on Friday? (2 points)</p>	
<p>9. Lonan can make 23 cheese pizzas in one hour. His brother Konan can make only 15 cheese pizzas in one hour. Konan must make cheese pizzas for at least 3 hours a day. Lonan can make cheese pizzas for no more than 5 hours a day. If cheese pizzas can only be made for 7 hours each day and both Konan and Lonan can make cheese pizzas at the same time, what is the maximum number of cheese pizzas that can be made in a day? (3 points)</p>	
<p>10.  Evelyn is ordering pizza from Jerome's Pizza Dome to be delivered to her mansion for a party. A delivery truck has a hotbox to keep the pizzas warm. Each hotbox is a rectangular prism with dimensions 5 yards by 2.5 yards by 3 yards. A pizza box is a rectangular prism with dimensions 6 inches by 2 inches by 6 inches. If Evelyn needs 50,000 pizzas delivered to her mansion, and all pizzas delivered are transported only in the hotbox of a delivery truck, what is the smallest number of delivery trucks it will take to deliver all of her pizzas at once? Assume that each truck takes only one trip and cannot come back for more. (3 points)</p>	
<p>11. The minimum age required to work at Jerome's Pizza Dome is 17. Five years ago, Lonan the baker was 3 years older than the minimum age. In 2 years Taj the delivery guy will be 4 years older than Lonan is now. How old is Taj now? (3 points)</p>	
<p>12. Konan wants to crack the 3-number combination to the high security refrigerator at the Pizza Dome. The first number in the combination is the positive root of the equation: $z^2 + 4z - 32 = 0$. The second number is the value of x in the solution to the system of equations: $x + y = 2$ and $x - y = 4$. The third number is the positive root of the equation: $x^2 - 4x - 5 = 0$. What is the product of the three numbers in the refrigerator's combination? (4 points)</p>	

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