🍕 Advanced Mini Pizza Math Challenge

Grades 5–8

Name: _____ **Date:** _____ **Score:** _____

Instructions: Apply your middle-school math skills (ratios, geometric area, proportions, and percentage calculations) to solve each recipe scenario. Show your work clearly.

Problem 1 — Recipe Scaling & Fractions

The base recipe makes 4 mini pizzas using $^1/_2$ lb dough, $^1/_4$ cup sauce per pizza, and 2 cups cheese total.

A. How many total cups of sauce are needed to make 14 mini pizzas?

B. If dough is sold in 1.5 lb bags, how many full bags must you buy for 14 pizzas?

Show work (Fraction operations & rounding):

Answer: _____

Problem 2 — Area vs. Crust Size

You can roll the dough into one 12-inch diameter circular pizza or four 6-inch diameter mini pizzas.

A. Calculate the total surface area of four 6-inch mini pizzas ($A = \pi r^2$, use $\pi \approx 3.14$).

B. Which option offers more pizza surface area: 1 large or 4 mini pizzas?

Show work (Area formula $A = \pi r^2$):

Answer: _____

Problem 3 — Macronutrients & Ratios

One mini pizza contains 320 total calories: 12g fat (108 kcal), 38g carbs (152 kcal), and 15g protein (60 kcal).

A. What percentage of the total calories comes from protein? (Round to nearest 0.1%).

B. What is the simplified ratio of carbohydrate calories to fat calories?

Show work (Percentages & simplified ratios):

Answer: _____

Problem 4 — Unit Price & Discounts

Store A sells 16 oz cheese for $4.80. Store B sells 24 oz cheese for $6.60 with an extra 10% off coupon applied at checkout.

A. Calculate the final unit price per ounce for both stores.

B. How much money do you save per ounce by choosing the cheaper store?

Show work (Unit rate & discount rates):

Answer: _____

Problem 5 — Sales Tax & Profit Margin

A middle school club bakes mini pizzas. Ingredients cost $1.85 per pizza. They sell each pizza for $4.50 plus 6% sales tax.

A. What is the total cost a customer pays for 3 pizzas (including tax)?

B. Calculate the net profit earned by the club for selling 40 pizzas.

Show work (Multi-step percent & profit equations):

Answer: _____

Problem 6 — Thermal Rates & Time

The oven preheats from 65°F to 425°F at a constant rate of 30°F per minute. Pizzas bake for 11 minutes.

A. How many minutes will it take for the oven to preheat completely?

B. If preheating starts at 4:40 PM, at what exact time will baking be finished?

Show work (Linear rate of change & elapsed time):

Answer: _____