

4th Grade Math Competition

General Information

Calculators will **not** be allowed during any part of the 4th grade competition.

All answers for individual or group competition must include units where units are used in the problem (a.m., p.m., hours, inches, feet, dollars, cents, boxes, gallons, etc.)

Notations used in competition problems:

- Multiplication will be written as “x” or “*”
- Multiplication can also be written as 2(\$0.25) using parentheses (Grades 4 & 5)
- Division will be written as “÷” or “/”
- Cents can be written as \$0.25 or 25¢ or 25 cents
- Dollars can be written as \$10 or \$10.00 or 10 dollars

Individual Competition

The individual competition will be divided up into 4 rounds of 5 questions each. Each round will be designed to increase slightly in difficulty.

Individual competition questions will test proficiency and accuracy in all of the areas listed for 3rd grade as well as the following areas. Sample problems are provided as examples. However, the actual competition may include other forms of questions that demonstrate proficiency of that topic area, including word problems. Multiple areas may also be combined into single problems.

1. Apply the correct operation for the terms quotient, dividend, divisor, and remainder.
2. Round decimal numbers and dollar amounts.
3. Compare, add, subtract, and multiply decimal and whole numbers. Apply exponents.
4. Solve for a variable.
5. Divide whole or decimal numbers by whole numbers.
6. Solve problems using parentheses and exponents to indicate the order of operations.
7. Identify even, odd, prime, and composite numbers.
8. List multiples or factors of a number. Identify the least common multiple of a set of numbers.
9. Find the mean (average) of a set of numbers.
10. Compare, add, subtract, and multiply fractions. Identify the numerator and denominator.
11. Write equivalent fractions and convert between mixed and improper fractions.
12. Use fractions or ratios to compute parts of a set.
13. Write tenths and hundredths using fractions, decimals, or percents. Find a percent of a number.
14. Identify the relationships between units of measure:
 - a. Inches, feet, and yards
 - b. Centimeters, millimeters, and meters
 - c. Pounds and tons
 - d. Cups, pints, quarts, and gallons.
 - e. Seconds, minutes, hours, and days
15. Compute whole or decimal number distances between points on the number line.

4th Grade Math Competition

16. Add and subtract dollar amounts. Multiply and divide dollar amounts by whole numbers. Add sales tax.
17. Identify the properties of a circle. Use the approximate value of pi to compute the circumference of a circle.
18. Identify geometric objects and classify them by their attributes including number of sides, faces, angles (parallel, perpendicular, etc.), and lines of symmetry.
19. Compare and order objects by size (area).
20. Find the perimeter of a polygon.
21. Create and read a Venn diagram.
22. Read a bar or line graph.
23. List possible combinations of a set of items.

Sample Individual Competition Questions

1. If $4y = 20$, then $2y - 1$ equals what number? Answer: 9
2. $120(15¢) =$ _____ Answer: \$18.00
3. $\$50.35 / 5 =$ _____ Answer: \$10.07
4. $(5 + 2)^2 + (6 - 3)^2 =$ _____ Answer: 58
5. Multiply $2 _ \times 3 _$. Write the answer as a mixed number. Answer: $8 _$
6. How many one tenths are in ten? Answer: 100
7. How many pounds does a 16_-ton storage container weigh? Answer: 33,000 pounds
8. On a number line, what point is one-fourth the distance between 2.4 and 6.8? Answer: 3.5
9. Terry bought 2 candy bars that cost \$0.59 each. She also bought a bag of chips for \$2.49. Sales tax was \$0.24. If she paid with a \$10 bill, how much change will she get? Answer: \$6.09
10. What is circumference of a circle that is 5 cm in diameter? Use 3.14 for pi. Answer: 15.7 cm
11. There were 25 students in the class. 18 students ordered sandwiches. 10 students ordered only frozen yogurt. 5 students ordered both a sandwich and a frozen yogurt. How many students did not order anything at all? Answer: 2 students
12. Sarah's mother told her to always eat a fruit with her sandwich. Her choices for sandwiches are peanut butter, cheese, or turkey. Her choices for fruit are grapes or an apple. How many different lunch combinations of 1 sandwich and 1 fruit can she have? Answer: 6

4th Grade Math Competition

Group Competition

The group competition will consist of 5 team questions. Each of the five questions will be designed to be similar in difficulty.

Group competition questions will test the team's ability to solve longer, more complex problems involving multiple topic areas. Group questions may also require creative thinking, splitting the work into tasks that can be divided among the teammates, and logical thinking. If the first attempt is incorrect, teams will have an opportunity for a second chance to answer each group question.

Sample Group Competition Questions:

1. What fraction is equivalent to $\frac{4}{5}$ and has a denominator that is 4 more than its numerator?
Answer: $\frac{16}{20}$
2. Melissa got \$50 for her birthday. She wants to buy a new dress and a pair of new shoes. If the dress costs \$36.00, the shoes cost \$22.00, and the sales tax is seven cents on every dollar spent, how much more money does she need?
Answer: \$12.06
3. The bald cypress tree grows 3 inches in diameter every 5 years. Use 3.14 for the value of pi. How big around (circumference) will the tree be in 40 years?
Answer: 87.92 inches
4. Write a number in the blank that will make the answer 39.
 \rightarrow $\boxed{\times 4}$ \rightarrow $\boxed{+ 6}$ \rightarrow $\boxed{\div 2}$ \rightarrow $\boxed{- 4} = 39$ Answer: 20
5. The ratio of girls to boys participating in volleyball at Monroe School is 7 to 4. There are 42 girls in the program. What was the total number of participants?
Answer: 66
6. What is the greatest possible quotient that can be made by placing the digits 2, 4, 6, 8, and 9 each into a box? Round your answer to the nearest hundredth.
Answer: 41.08

$$\boxed{} \boxed{} \boxed{} \div \boxed{} \boxed{}$$