



Oklahoma School of Science and Mathematics
Ninth Annual Middle School Mathematics Contest
Round One, Spring, 2011

Directions: Write the answer to each question in the box to the right. Units are given in plural form even if the singular form is correct. Use the scratch paper provided to do your work. Calculators are allowed, but not necessary.

Common fractions should be in simplest form $\left(\frac{a}{b}\right)$ not mixed numbers.

Name: _____

1. If Larry walks 2.4 km in 12 minutes, how far can he walk in 30 minutes?	1. 6.0 km
2. Simplify $\frac{1 - \frac{1}{2}}{2}$	2. $\frac{1}{4}$
3. By putting suitable signs + , - , × , ÷ , (,) in-between the digits 4 4 4 one can generate many numbers, for example, $4 - (4 \div 4) = 3$. Which of the following numbers can be generated this way? 16, 20, 22, or 24	3. 20
4. Farmer Shrock put a square fence around his vegetable garden to keep the deer from eating his corn. One side was 10m in length. If the posts were placed 2m apart, how many posts did he use?	4. 20 posts
5. What is the value of $3\frac{2}{5} \times 4\frac{3}{5}$ expressed as a common fraction?	5. $\frac{391}{25}$
6. Three positive integers are in the ratio 1:3:4 and have a sum of 72. What is the smallest of the three integers?	6. 9
7. Dr. Andrew asked his students to open their text to the place where the two visible page numbers add up to 85. What is the page number on the left page?	7. Page 42
8. How many Euros can you buy with \$300.00 if the exchange rate is 0.80 Euros for a dollar?	8. 240 €
9. If $\sqrt{100} = \sqrt{36} + \sqrt{x}$, then what is the value of x?	9. 16
10. A rectangle is four times as long as it is wide. The area of the rectangle is 100 square meters. What is the length of the rectangle?	10. 20 m
11. My father is four times as old as me. In 20 years, he will be only twice as old as me. How old is my father?	11. 40 yrs
12. If a = 9 and b = 2, what is the value of $\frac{a^b}{\sqrt{a^b}}$?	12. 9
13. In 1980 the price of 5 lbs of flour was \$1.00. In 1981 the price was <u>increased</u> 10 percent. In 1982, the 1981 price was <u>decreased</u> by 10 percent. What was the price of 5 lbs of flour in 1982 (to the nearest penny)?	13. \$0.99
14. Kenneth deposited \$2.00 in the bank on Jan 1, \$4.00 on Feb 1, \$6.00 on Mar 1, \$8.00 on Apr 1, and so on. How much money has he saved on Dec 31st?	14. \$156.00

15. A horse barn has stalls for 1,000 horses. Forty percent of the stalls are for ponies. On Thursday, there were 200 ponies and a bunch of quarter horses at the horse barn. The horse barn was 75 percent full. How many quarter horses were in the stalls?	15. 550 qtr horses
16. There are three circles: A = the largest B = the middle sized one C = the smallest circle has a diameter of 20cm. The circles are drawn so that the radius of Circle A is the diameter of Circle B, and the radius of Circle B is the diameter of Circle C. What is the radius of Circle A?	16. 40 cm
17. If $f(x) = x^2 - 2x + 5$, what is $f(-x)$?	17. $x^2 + 2x + 5$
18. Dan's Taxi Company charges passengers \$1.15 for the first mile travelled and \$0.65 for each additional mile. If the cab fare was \$10.25, how far did the taxi go?	18. 15 miles
19. Simplify $\left(\frac{3a^2b}{2bc^2}\right)^2 \left(\frac{4b^2c^2}{9ab^2c}\right)^3$	19. $\frac{16a}{81c}$
20. Ian made a list of all the whole numbers between 1 and 100. How many times did he write the number 3?	20. 20 3's
21. Three ducks and two ducklings weigh 32 kg. Four ducks and three ducklings weigh 44kg. All ducks weigh the same and all ducklings weigh the same. What is the weight of two ducks and one duckling?	21. 20 kg
22. Dorothy's dog Hanna barks for 30 sec every time the doorbell rings. On halloween, 11 children arrived at one minute intervals and each rang the doorbell. Then 20 seconds after the last doorbell ring, one child arrived and rang the doorbell every 20 seconds, ringing it a total of 5 times. How many seconds total did Hanna bark?	22. 430 sec
23. It takes one man one day to dig a 2m x 2m x 2m hole. How long does it take 3 men working at the same rate to dig a 4m x 4m x 4m hole (in days)?	23. $\frac{8}{3}$ days