

7th -8th Grade

Regional Math Meet Tests

2019

- **Individual Problems**
 - Event 1: Problem Solving (No Calculator)
 - Event 2: Problem Solving (With Calculator)
 - Event 3: Mathematical Reasoning
 - Event 4: Mental Math

- **Team Problems**
 - Event 5: Team Problems

- **Tie Breaker Question**

Name: _____ School Team: _____

Event 1: Computations Without Calculator- 20 points total

Circle your final
answer!

Part I (2 points each)

Give all answers in simplest form.

1. $\frac{3-4|2-5|}{5-9 \div 3+8}$

2. $(0.11 + \frac{1}{2} \times 0.11) \div 2$

3. $-\sqrt{64} \times 8^2 - 39 \div 3$

4. What percent of 14 is 18.2?

5. We know $6(x+4) - 7 = -7$. Find the value of $-3x^3 - 2x$

Name: _____

School Team: _____

Circle your final
answer!

Event 1: Computations Without Calculator

Part II (2 points each)

Give all answers in simplest form.

1. Write 5,694.2% as a simplified mixed number.

2. Find $\frac{2}{3}$ of 680% of 27.

3. $\left[\left(\frac{2}{7} + \frac{2}{5}\right) \div \frac{1}{2}\right] \times \frac{5}{6}$

4. $\left(1\frac{3}{4} + 1\frac{4}{5}\right) \div 71$

5. Find the value of x. $6x - 18(2 + x) - 10 = 5(x + 1)$

Name: _____ School Team: _____

Circle your final
answer!

Event 2: Computations With Calculator- 25 points total
Consumer Math (5 points each)

1. A 12 ounce can of green beans costs 69 cents and a 20 ounce can of green beans costs \$1.17. Which is the better buy?
2. A man decides to go into business selling vacuum cleaners. He purchases 53 vacuum cleaners for \$47.79 each. He marks up their price by 132% to sell. After selling 18 of the vacuum cleaners, he discounts the rest by 25%. Find his total profit or loss. Be sure to label if it is a profit or loss. Round to the nearest cent.
3. Ian's paycheck is \$168.04. He knows that his deductions were \$35.26 during this pay period. If he makes \$10.70 an hour, how many hours did he work?
4. Suppose that you want to purchase a laptop for \$617.89 and a printer for \$134.57. You have a coupon for \$10 off the printer, which will be applied before tax. Additionally, the store offers a 5% discount for purchases on laptops on Tuesdays. If you buy everything on a Tuesday and sales tax is 5.7%, find the total cost. Round to the nearest cent.
5. An entrepreneur spends \$18.71 on each craft he creates. He wants to sell 35 crafts and make at least \$400. Find the smallest percent markup that he must use to reach this profit. In calculations, round to the nearest cent. Round your percent to the nearest tenth.

Name: _____ School Team: _____

Event 3: Mathematical Reasoning With Calculator- 35 points totalCircle your final
answer!

Geometry Part II (7 points each)

Remember to use labels when appropriate

4. Ben is thinking of a rectangle with a perimeter of 216cm. The length of every side of the rectangle he's thinking of is a multiple of 3. The area of the rectangle he's thinking of is between 1000cm^2 and 1800cm^2 . Find the dimensions of all possible rectangles that Ben might be thinking of.
5. A square has an area of 36in^2 . What is the area of a circle whose diameter is as long as the diagonal of that square? Use 3.14 for pi. Do not round any other numbers until the very end of the problem, then round your final answer to the nearest hundredth.

Name: _____ School Team: _____

Event 4: Mental Math (no calculator)- 20 points total
(2 points each)

Example: _____

1) _____

2) _____

3) _____

4) _____

5) _____

6) _____

7) _____

8) _____

9) _____

10) _____

Name: _____ School Team: _____

Circle your final
answer!**Event 5: Team Problems (with calculator)- 100 points total****Part 1: Number Theory (3 points each)**

1. Some aliens have entered your classroom. They work math problems differently than what you're used to. They seem to follow some strange rules when solving arithmetic problems. The rules do not change- they always stay the same. Assume that the aliens found the correct answers to each of the problems shown below.

$5 \odot 4 = 23$

$1 \odot 3 = 6$

$2 \odot 8 = 19$

$3 \odot 7 = 24$

$6 \otimes 1 = 4$

$6 \otimes 5 = -4$

$8 \otimes 3 = 2$

$9 \otimes 2 = 5$

Solve each of the problems below, using the same rules as the aliens.

a) $7 \otimes 12$

b) $4 \otimes 3$

c) $8 \odot 7$

d) $12 \odot 6$

e) $(4 \odot 8) \otimes 9$

f) $8 \otimes (2 \odot 3)$

Name: _____ School Team: _____

Circle your final
answer!

Event 5: Team Problems (with calculator)- 100 points total

Part 4: Rates (8 points each)

- a) During a basketball camp Hector and Joe keep track of the number of free-throw shots that they make. Before the last day of camp, Hector has made 100 of his 150 attempts. Joe has made only 99 of his 150 attempts. On the last day, Joe shoots and makes 12 more. Hector shoots 13 more but only makes 11 of them. Who was the better free-throw shooter over the entire basketball camp?
- b) Two typists can type two pages in two minutes. How many typists will it take to type eighteen pages in six minutes?
- c) A mile-long train traveling at 60mph enters a mile long tunnel. How long does it take for the entire train to pass through the tunnel?
- d) Kensie runs one lap around the track at a speed of 3mph and a second lap around the track at a speed of 6mph. Find her average speed for the two total laps run.

Name: _____ School Team: _____

Circle your final
answer!

TIE BREAKER (with calculator)

- 1) If you find the product of the first 25 positive integers, how many zeros will be at the end of the number?

- 2) You roll 8 dice and find the product to be $2^3 \times 3^3$. What are all of the possible sums of the dice?

- 3) A rectangle has a perimeter of 40 centimeters. The length and the width are both integers. How many different rectangles are possible?