

**WISCONSIN MIDDLE SCHOOL STATE MATHEMATICS MEET**  
**WISCONSIN MATHEMATICS COUNCIL**

March 4 – 8, 2019

Problem Set #1

Score: \_\_\_\_\_  
(For Scorer's Use Only)

Name: \_\_\_\_\_

Team: \_\_\_\_\_

[Reduce all common fractions. Decimal approximations are **not** accepted unless specifically asked for. When allowed, round decimal approximations to **3** decimal places. **No rounding should be done except on the final answer.**]

**For this first problem set, calculators are not allowed. They may be used for the remainder of the meet only, starting with Problem Set #2.**

Answers

1. (1 point)

$4^2 + 2^4 + 4^2 + 2^4 = ?$  A)  $12^{12}$  B)  $8^2$  C)  $8^{12}$  D)  $12^{64}$  \_\_\_\_\_

2. (3 points)

In a group of 50 middle school students, 10 students take Spanish, 12 students take French, and 4 students take both languages. How many students take neither French nor Spanish? \_\_\_\_\_

3. (5 points)

You and six of your friends play in a chess tournament. Each person played exactly 3 games with each of the other participants. How many games were played? \_\_\_\_\_

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Problem Set #2

Score: \_\_\_\_\_  
(For Scorer's Use Only)

Name: \_\_\_\_\_

Team: \_\_\_\_\_

[Reduce all common fractions. Decimal approximations are **not** accepted unless specifically asked for. When allowed, round decimal approximations to **3** decimal places. **No rounding should be done except on the final answer.**]

Answers

1. (1 point)

If you roll 5 six-sided dice, what is the probability of rolling a 1 on all five dice? \_\_\_\_\_

- A)  $\frac{1}{30}$     B)  $\frac{1}{7776}$     C)  $\frac{5}{36}$     D)  $\frac{1}{1296}$

2. (3 points)

Farmer Fred needs to buy some new animals for his farm. Piglets cost \$40 and calves cost \$75. Farmer Fred buys a total of 50 animals, spending \$2735. How many piglets does Farmer Fred buy? \_\_\_\_\_

3. (5 points)

If Mrs. Meyer separates her class into groups of four students each, one student is left over. If she separates her class into groups of five students each, two students are left over. What is the fewest number of students the class could have? \_\_\_\_\_

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Problem Set #3

Score: \_\_\_\_\_  
(For Scorer's Use Only)

Name: \_\_\_\_\_

Team: \_\_\_\_\_

[Reduce all common fractions. Decimal approximations are **not** accepted unless specifically asked for. When allowed, round decimal approximations to **3** decimal places. **No rounding should be done except on the final answer.**]

Answers

1. (1 point)

A rectangle is divided into three congruent squares. \_\_\_\_\_  
The area of each square is 49 square units. What  
is the perimeter of the rectangle?

- A) 84    B) 147    C) 28    D) 56

2. (3 points)

Cathy's average grade on her six math tests was 88%. \_\_\_\_\_  
If her lowest grade was dropped, her average on the  
other five tests would be 92%. What was her lowest  
grade in the original set of six grades?

3. (5 points)

Six siblings, each born in a different year, share a \_\_\_\_\_  
gift of \$315 according to the following arrangement:  
Each sibling, except for the youngest, gets \$5 more  
than his next younger sibling. How much money  
does the youngest sibling get?

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Problem Set #4

Score: \_\_\_\_\_  
 (For Scorer's Use Only)

Name: \_\_\_\_\_

Team: \_\_\_\_\_

[Reduce all common fractions. Decimal approximations are **not** accepted unless specifically asked for. When allowed, round decimal approximations to **3** decimal places. **No rounding should be done except on the final answer.**]

Answers

1. (1 point)

If  $x > 0$  and  $xy < 0$ , then which of these is true?

- A)  $y > 1$    B)  $y > 0$    C)  $y > x$    D)  $x > y$

\_\_\_\_\_

2. (3 points)

Jane made a 120-mile trip to the Wisconsin Dells, averaging 60 miles per hour. On the return trip, she averaged 40 miles per hour, due to heavy traffic on the highway. What was Jane's average speed for the entire trip?

\_\_\_\_\_

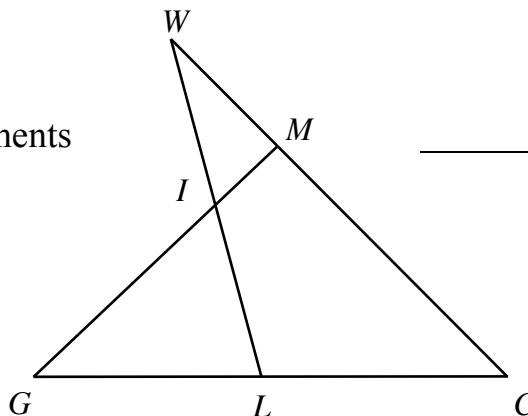
3. (5 points)

Points  $M$  and  $L$  lie on segments  $\overline{WC}$  and  $\overline{GC}$ , respectively.

$m\angle LWC = 31^\circ$

$m\angle MGC = 48^\circ$

$m\angle MIL = 124^\circ$



\_\_\_\_\_

Determine the measure of  $\angle WCG$ .

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Team Problem Set (Page 1)

Score: \_\_\_\_\_  
 (For Scorer's Use Only)

Team: \_\_\_\_\_

Captain: \_\_\_\_\_

[Reduce all common fractions. Decimal approximations are **not** accepted unless specifically asked for. When allowed, round decimal approximations to **3** decimal places. **No rounding should be done except on the final answer.**]

Answers

1. (10 points)

Define a new operation  $\clubsuit$  for real numbers like this: \_\_\_\_\_

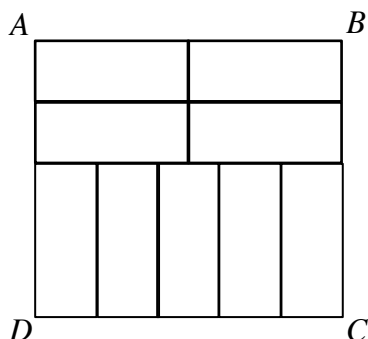
$$a \clubsuit b = \frac{ab}{a+b}. \text{ Then } (10 \clubsuit 10) \clubsuit (6 \clubsuit 3) = ?$$

2. (10 points)

It takes Jack 20 days to paint a model ship. You can \_\_\_\_\_  
 paint the same ship in 12 days. How long will it take  
 to paint the ship if both of you work together?

3. (10 points)

Nine congruent rectangles are arranged as shown \_\_\_\_\_  
 to form rectangle  $ABCD$ . If  $AB = 30$ , find the  
 perimeter of rectangle  $ABCD$ .

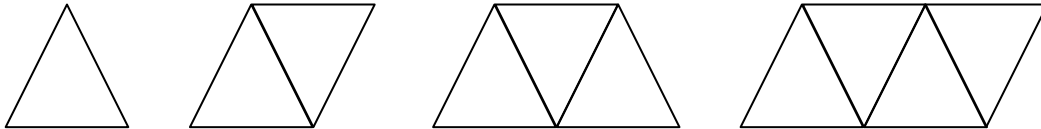


**Team Problem Set (Page 2)**

4. (10 points)

Tom is putting together triangles using toothpicks. If he follows this pattern, how many toothpicks will it take to make fifty attached triangles?

\_\_\_\_\_



5. (10 points)

Suppose each letter of the alphabet is assigned a dollar value in a specified manner. If the word “ONE” is worth \$23, “TWO” is worth \$17, and “ELEVEN” is worth \$41, then how much would the word “TWELVE” be worth?

\_\_\_\_\_

6. (10 points)

In the sequence of numbers below, which term is 533? \_\_\_\_\_

9, 13, 17, 21, 25, ...