Name:	MA
School:	Θ
Grade:	

# **Round 1: Multiple Choice Test**

You will have 60 minutes to complete the 30 problems in this round. Make sure to bubble in your answer sheet. Correct answers are 6 points each. There is no penalty for incorrect answers, so it is a good idea to answer all questions. No calculators!

#### Problem 1

Becky is doing the math problem:  $2 \times 4 - 6 \div 2$  and gets the answers 1. If she had followed order of operations, she would have gotten the correct answer. What is the difference between Becky's answer and the correct answer?

A. 7
B. 6
C. 5
D. 4
E. 3

#### Problem 2

How many dimes does it take to equal the same amount as 6 quarters?

- A. 11B. 12C. 13D. 14
- E. 15

# Problem 3

What is the value of the following expression:  $\frac{5}{7} - \frac{1}{4}$ ?

A.  $\frac{4}{3}$ B.  $\frac{4}{28}$ C.  $\frac{6}{11}$ D.  $\frac{13}{28}$ E.  $\frac{9}{16}$ 

One end of a pool is 75 inches deep. The opposite end is  $\frac{1}{5}$  as deep. What is the depth, in inches, of that end?

A. 10
B. 12
C. 15
D. 18
E. 20

# Problem 5

Two angles in a triangle measure 24° and 63°. What is the measure of the third angle?

A. 87°
B. 93°
C. 101°
D. 104°
E. 126°

#### Problem 6

An equilateral triangle has a perimeter of 9 inches. The perimeter of another equilateral triangle is 4 times as much as the first one. What is the side length of the second triangle?

A. 12
B. 14
C. 15
D. 24
E. 36

#### Problem 7

Water is being filled in a tub. The height of the water rises at a speed of 18 inches per hour. After how many minutes will the height of the water have increased by 72 inches?

- A. 3
- B. 4
- C. 180
- D. 240
- E. None of the above

In a can, there is enough paint to cover 450 square inches of paper. Each piece of paper I have is 7 inches tall and 5 inches long. How many pieces of paper can I completely paint?

A. 9
B. 11
C. 12
D. 13
E. 14

# Problem 9

Maddie has 4 black socks and 4 white socks. How many socks must she take at random before she is certain that she has a pair of matching (same color) socks?

A. 1
B. 2
C. 3
D. 4
E. 5

#### Problem 10

If I pick a random even number between 1 and 100 (inclusive), what is the probability that it is also a multiple of 5?

A. 
$$\frac{1}{2}$$
  
B.  $\frac{1}{5}$   
C.  $\frac{1}{10}$   
D.  $\frac{3}{10}$   
E.  $\frac{2}{5}$ 

#### Problem 11

The surface area and the volume of a cube have the same value. What the length of a side of the cube?

A. 3
B. 4
C. 6
D. 7
E. 8

Allie takes a negative number and multiplies it by a positive number. Then, she multiplies the result by 2. Finally, she subtracts a positive odd number from her last number. Which of the following is a possible number Allie could have gotten?

A. 34
B. 61
C. -48
D. -97
E. 25

# Problem 13

If a#b = (a + b)(a - b) where a and b are two numbers, what is (3#2)#1?

A. 24
B. 12
C. 6
D. 4
E. 2

## Problem 14

If May 19th is on a Saturday this year, what day will June 25th be on this year?

- A. Monday
- B. Tuesday
- C. Wednesday
- D. Thursday
- E. Friday

# Problem 15

Jason has 42 yards of fencing which he will arrange into a rectangle with integer side lengths to put around his tennis court. What is the area of the biggest possible tennis court Jason could have?

- A. 1764
- B. 882
- C. 441
- D. 294
- E. None of the above

A square with area 100 has one side decreased by 20% and the other side increased by 20%. What is the positive difference in the areas of the two shapes?

A. 0
B. 4
C. 8
D. 16
E. 40

## Problem 17

Shreya has a lot of homework today. Her math homework takes 45 minutes. Her science homework takes 18 minutes. Her language arts homework takes 67 minutes. If she starts at 6:00 and doesn't take any breaks, at what time will Shreya finish all her homework?

- A. 8:05B. 8:10
- C. 8:16
- D. 8:18
- E. 8:21

# Problem 18

To make some fruit punch, I need  $3\frac{1}{2}$  cups of pineapple juice for every 1 cup of apple juice. I currently have 6 cups of pineapple and 1 cup of apple juice. How many more cups of apple juice do I need to make the fruit punch?

A. 
$$\frac{1}{2}$$
  
B.  $\frac{1}{3}$   
C.  $\frac{4}{7}$   
D.  $\frac{12}{7}$   
E.  $\frac{5}{7}$ 

# Problem 19

I want to build a sidewalk around my circular garden. If the area of my garden is  $25\pi$  ft <sup>2</sup> and the sidewalk will be 1 foot wide, what will the area of the sidewalk be? Give your answer in terms of  $\pi$  (pi).

A. π
B. 6π
C. 9π
D. 10π
E. 11π

How many numbers from 1 through 20 are products of two different prime numbers?

A. 4
B. 6
C. 8
D. 9
E. 12

# Problem 21

1 year ago, Mandy was 4 times the age of Annie. 3 years from now, Annie will be twice the age of Annie. How old is Annie right now?

A. 2
B. 3
C. 5
D. 6
E. 7

# Problem 22

What is the area of this shape (all angles are right angles and the numbers represent the side lengths)?



# Problem 23

I went to the store to buy a new bicycle. The store only sells bicycles and tricycles. I counted a total of 134 wheels and there were 59 bicycles and tricycles combined. How many bicycles did I see?

- A. 23
- B. 39
- C. 41
- D. 44
- E. None of the above

Sally charges \$23 flat fee for repairing windows and charges \$12 for every hour it takes. If she only works whole number hours, which of the following is not a possible amount she can charge?

A. 59
B. 95
C. 163
D. 179
E. 191

## Problem 25

Billy got some money for his birthday. He spent 50% of it on shoes. Of the remaining money he spent  $\frac{1}{4}$  on candy. Then he had \$12 left. What is the product of the digits of the amount of money Billy had to start with?

A. 6
B. 8
C. 12
D. 14
E. 24

# Problem 26

Coral likes to make new words out of words she already knows. She uses the word SPLASH. Every new "word" that Coral makes must have all the letters of the original word rearranged. How many "words" can Coral make, including her original word SPLASH?

- A. 720B. 360C. 240
- C. 240
- D. 120
- E. 5

# Problem 27

Isabel is taking a test. If she answers a question correctly, she earns 5 points. If she answers a question incorrectly, 2 points are taken away. If she answers all 20 questions and gets a score of 72, then what percent of the questions did Isabel answer correctly?

A. 65
B. 70
C. 75
D. 80
E. 85

Jenny orders pizza at a restaurant. She can either get a small, medium, or large pizza. There are four toppings from which she can either choose any 1, 2, or 3 toppings. How many possible ways can Jenny order her pizza?

A. 24
B. 30
C. 36
D. 40
E. 42

## Problem 29

Lily built a semi-cylindrical tunnel for her hamster as shown in the picture. The hamster has a volume of  $5\pi$  cubic inches. If Lily's hamster sits inside the tunnel, what is the volume of the air inside of the tunnel, in cubic inches? Note that all meaurements below are in inches.



# Problem 30

Anna, Bob, Carl, and Diana, Eddie, and Fred are going to the movies and have reserved 6 seats next to each other in a straight row. How many ways can they rearrange themselves if Anna and Carl do not want to sit next to each other?

- A. 240
- B. 320
- C. 360
- D. 480
- E. 960