

# Regional Math Bee – Round 2 (3<sup>rd</sup>-4<sup>th</sup>)

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## Regulation Tossups

(1) **Read Twice. Computation Basic** - What is 35 times 12?

ANSWER: 420

(2) **Read Twice. Computation Pyramidal** - Jennifer rolls a square with a side length of 5 meters on the ground. It stops after completing 8 full rotations, and Jennifer wants to figure out how far it traveled. To do this, she calculates the object's perimeter and multiplies it by the number of rotations to find that, for the point, the square rolled how far?

ANSWER: 160 meters

(3) **Read Twice. Computation Basic** - What is the probability of rolling an even number on a fair six-sided die?

ANSWER: 0.5 (or 50%; or 1/2; or one-half)

(4) **Non-Computation** - This set of numbers is symbolized with a capital Z. This set of numbers includes zero, all positive whole numbers, and their opposites, and these numbers do not include fractions or decimals. The absolute value of a member of this set of numbers is its distance from zero. For the point, name this set of numbers that includes 3 and negative 7, but not one-half.

ANSWER: integers

(5) **Read Twice. Computation Pyramidal** - Sabrina is observing 5 bacteria that will divide into 2 equal parts once every hour, and wants to know how many bacteria will be in her sample after 3 hours of observation. In order to figure this out, she can create a sequence that starts with 5 and multiplies the previous term by 2 three times in order to, for the point, calculate that there are how many bacteria after 3 hours?

ANSWER: 40

(6) **Read Twice. Computation Basic** - Consider the following set of numbers (*read slowly*): 24, 27, 19, 22, 23, 24, 22, 20, 22, 5. What is the mode of this set of numbers?

ANSWER: 22

(7) **Read Twice. Computation Basic** - What is the name of the geometric shape whose interior angles always sum to exactly 540 degrees?

ANSWER: pentagon (accept 5-gon)

(8) **Read Twice. Computation Basic** - If event A occurs once for every three occurrences of event B, how many times will event A occur if event B happens 48 times?

ANSWER: 16

(9) **Non-Computation** - Euclid's Theorem states that there are infinitely many of these numbers. "Twin" versions of these numbers are separated by one even number, such as 6 and 18. 2, 3, and 5 are examples of, for the point, which numbers that contrast with composite numbers?

ANSWER: **prime** numbers (accept **twin primes**)

(10) **Read Twice. Computation Basic** - What is 26 times 7?

ANSWER: **182**

(11) **Read Twice. Computation Basic** - In simplest fractional terms, what is three-eighths times one-fourth times six?

ANSWER: **9/16** (or **nine-sixteenths**)

(12) **Read Twice. Computation Pyramidal** - Sarah has a rectangular pen that surrounds her barn with a length of 24 meters. She wants to calculate how much the perimeter would increase by if she doubles the length without changing the width. To do this, she replaces 24 with 2 times 24 in the equation area equals 24 plus 24 plus width plus width and disregards width since it is unchanged. For the point, what does Sarah calculate the difference in perimeter will be?

ANSWER: **48** meters

(13) **Read Twice. Computation Basic** - What is 15 times 14?

ANSWER: **210**

(14) **Non-Computation** - The ancient Mayans developed a shell-shaped symbol to represent this number. Brahmagupta formalized the concept of this number, which the Indians used a dot to represent. For the point, what number originated as a placeholder for nothingness?

ANSWER: **zero**

(15) **Read Twice. Computation Basic** - *Round your answer to the nearest hundred.* What is 5120 divided by 3?

ANSWER: **1700**

(16) **Read Twice. Computation Basic** - If a square has a side length of 23, what is its perimeter?

ANSWER: **92**

(17) **Read Twice. Computation Pyramidal** - *Give your answer in simplest fractional form.* Martin has 2 blue marbles, 3 green marbles, and 6 yellow marbles, and he wants to determine the likelihood, represented as a fraction, that he will pick a green or a blue marble at random. To do this, he adds the number of green and blue marbles and divides that by the total number of marbles. For the point, what does Martin calculate the probability as?

ANSWER: **5/11** (or **five-elevenths**; or **five divided by eleven**)

(18) **Read Twice. Computation Basic** - Two angles combine to form a right angle. If one of the angles is 42 degrees, how many degrees is the other angle?

ANSWER: 48 degrees

(19) **Non-Computation** - The terms “tetrahedral” and “trigonal bipyramidal” refer to types of this concept used in chemistry. Plato names five regular, convex polyhedra studied in this mathematical discipline. This branch of mathematics includes the study of angles, triangles, circles, and polygons. For the point, name this field of mathematics that studies shapes and spatial relationships.

ANSWER: geometry

(20) **Read Twice. Computation Basic** - Round your answer to the nearest integer. What is 123 divided by 20?

ANSWER: 6

(21) **Read Twice. Computation Basic** - Give the answer to this question in fractional form. What is the sum of the fractions three-sevenths and six-sevenths?

ANSWER: 9 / 7 (or nine-sevenths; or one and two-sevenths)

(22) **Read Twice. Computation Pyramidal** - Jeannette has a regular hexagon with a side length of 13 centimeters and wants to know how far it would extend if she unraveled the shape. To calculate this, she realizes that she needs to calculate its perimeter, which for a regular hexagon is 6 times the side length. For the point, what does she calculate the perimeter of this shape to be?

ANSWER: 78 centimeters

(23) **Read Twice. Computation Basic** - What is 625 divided by 25?

ANSWER: 25

(24) **Non-Computation** - The sum of the interior angles of these figures is always 180 degrees. Examples of these figures include equilateral, isosceles, and scalene types, classified by comparing the lengths of their sides. The area of these figures can be found using one-half the base times the height. For the point, name these three-sided polygons.

ANSWER: triangles

(25) **Read Twice. Computation Basic** - Evaluate this expression: 5 times 3 plus 7.

ANSWER: 22

**Extra Questions**

(1) **Read Twice. Computation Basic** - A school is taking 148 students on a field trip. Each bus can hold 32 students. What is the maximum number of buses on this field trip that can be completely full of students?

ANSWER: 4