

2020 Castro Valley Junior Math Tournament  
Geometry & Potpourri Team Test – 6th-8th Grades

1	What is the perimeter, in feet, of a trapezoid with sides measuring 5 ft, 8 ft, 5 ft, and 10 ft?
2	What is the smallest palindrome greater than 22969? A palindrome is a number that reads the same forwards or backwards, such as 121 or 3443.
3	What is the volume, in cubic centimeters, of a cube with edges measuring 5 cm?
4	What is the sum of the 18 smallest positive odd numbers?
5	How many diagonals can be drawn in a convex heptagon?
6	Express the base-8 numeral $20_8$ as a base-10 numeral.
7	What is the radius, in meters, of a circle with a circumference of $6\pi$ m?
8	What is the 7th term of the geometric (multiplying or dividing) sequence whose first three terms are 2, 6, 18?
9	What is the length, in meters, of the hypotenuse of a right triangle with one angle measuring 30 degrees and a short leg measuring 2 meters?
10	Using the numbers 2, 4, and 1 exactly once each, and the operations of addition, subtraction, multiplication, and division (and parentheses) as much or as little as you like, create an expression that evaluates as close to 8 as possible. For example, if your digits were 4, 7, and 9, and your target were 8, your answer could be $4 \times (9 - 7)$ .
11	What is the volume, in cubic feet, of a right circular cone with a base radius of 9 ft, and a height of 4 ft?
12	What is the most specific name that can be given to at least one quadrilateral with sides measuring 5 m, 7 m, 8 m, and 9 m in that order around its perimeter?
13	What is the missing term of the sequence 1, 6, 16, 18, 31, 54, ____, ...?
14	Two lines were initially perpendicular, but then I rotated one 77 degrees clockwise and the other 70 degrees counter-clockwise. What is the measure, in degrees, of the smaller angle between the lines now?
15	How many vertices does a regular icosahedron have?
16	What is the sum of the 14 smallest positive perfect squares?
17	What is the area, in square meters, of a right triangle with legs measuring 4 m and 12 m?
18	What is the largest number smaller than 1000 that leaves a remainder of 4 when divided by 6?
19	What is the area, in square meters, of a circle inscribed in a square with an area of $16 \text{ m}^2$ ?
20	How many three-digit counting numbers have a tens digit that is a multiple of 3 (0 doesn't count)?

**DO NOT TURN OVER THIS  
TEST UNTIL YOU ARE  
INSTRUCTED TO BEGIN**

**ONLY ANSWERS WRITTEN  
ON THE ANSWER SHEET  
WILL BE SCORED**