"Math is Cool" Championships – 2014-15

**7th Grade** – November 7, 2014

**SCHOOL NAME** _____ **Team #** _____

Proctor Name _____ Room # _____

## Team Contest – Score Sheet

**TEAM TEST - 15 minutes – 30% of team score**

*When you are prompted to begin, tear off the colored sheet and give a copy of the test to each of your team members and begin testing. Each problem is scored as **1 or 0**. Record all answers on the colored answer sheet.*

**DO NOT WRITE IN SHADED REGIONS**

| | Answer | 1 or 0 | 1 or 0 |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | | | |

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Team Contest

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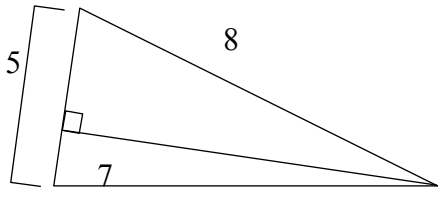
|---|---|
| 1 | Express $0.\overline{54}$ as a common fraction. |
| 2 | How many isosceles triangles are possible to construct using only integer side lengths and two sides with a length of 8 inches? |
| 3 | Records show that 17 students will take a combinatorics test, 14 will take a number theory test, and 12 will take a statistics test. If no student takes all three, but 7 take two of the three, how many students are there in total if everyone takes at least one of these tests? |
| 4 | What is the surface area of a regular octahedron with side length 3 in. |
| 5 | Five data values have a unique mode of 51 and a median of 50. If the range of the data is 20, what is the smallest possible average (arithmetic mean) of the 5 numbers? |
| 6 | My digital clock reads 12:00 at midnight going to 11:59 just before noon. Ignoring the ':', how many perfect squares are shown on the clock, for example 01:00 = 100. |
| 7 | How many four-digit multiples of 9 are also palindromes? |
| 8 | A barrel contains 750π cubic inches of ice cream. An ice cream cone is constructed by totally filling a cone, and then adding a hemisphere on top with the same maximum cross-section as the cone. Given a supply of cones of height 6 in and diameter 4 in, how many <u>complete</u> ice cream cones can be made? |
| 9 | Solve for $x$: $$\frac{1}{2-\frac{1}{2-\frac{1}{\ddots}}} = x$$ |
| 10 | Find the area of the figure below, given the labeled side lengths.   |

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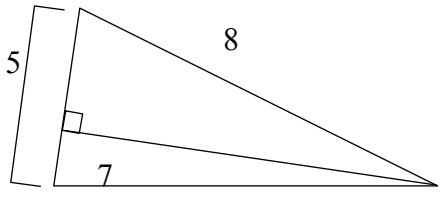
| 10 | Find the area of the figure below, given the labeled side lengths.   |

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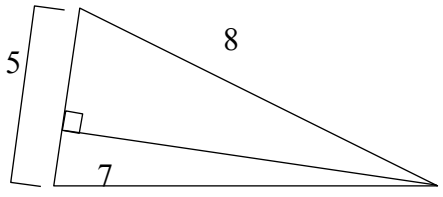
| 10 | Find the area of the figure below, given the labeled side lengths.   |

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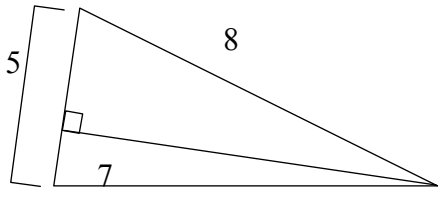
| 10 | Find the area of the figure below, given the labeled side lengths.   |