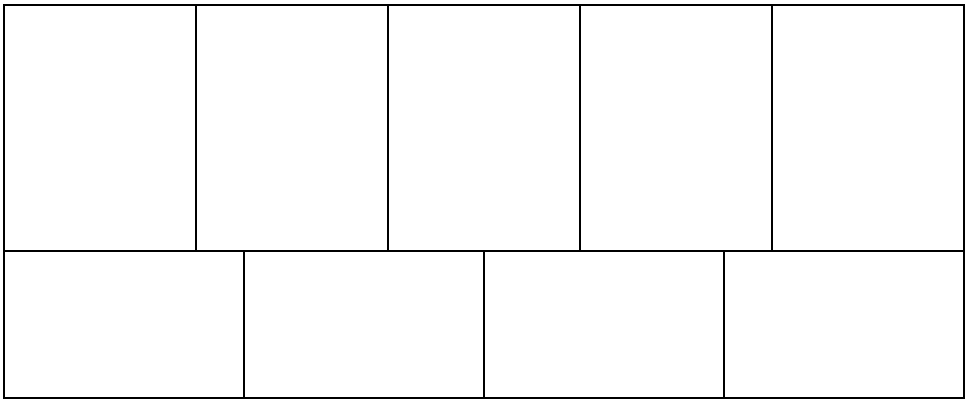
"Math is Cool" Championships – 2014-15

Sponsored by:

7th Grade – November 7, 2014

Pressure Round Contest

1	A group of backpackers wanted their friend to go on a backpack trip with them. They told him the hike was only going to be 6 miles. When the trip was over the friend said, "A closer approximation of the trip would have been 45 miles." What is the least number of miles that the backpackers could have traveled on the trip? Assume the length of the trip was a counting number.
2	Find the value of "a" when $27^{10} + 27^{10} + 27^{10} = 3^a$.
3	The lengths of two sides of a triangle are 11 and 19. What is the sum of all the whole number lengths the third side of the triangle could be?
4	Use the statement below to answer the question that follows. If pigs cannot fly, then they will not go to Arizona for the winter. Which statement below is logically equivalent to the above statement? (A) If pigs can fly, then they will go to Arizona for the winter. (B) If pigs go to Arizona for the winter, then they can fly. (C) If pigs do not go to Arizona for the winter, then they cannot fly. (D) If pigs go to Arizona for the winter, then they cannot fly.
5	The rectangle below consists of nine congruent rectangles. If the area of the largest rectangle is 180 cm^2, what is the perimeter, in cm, of one of the small rectangles?  Picture not drawn to scale.

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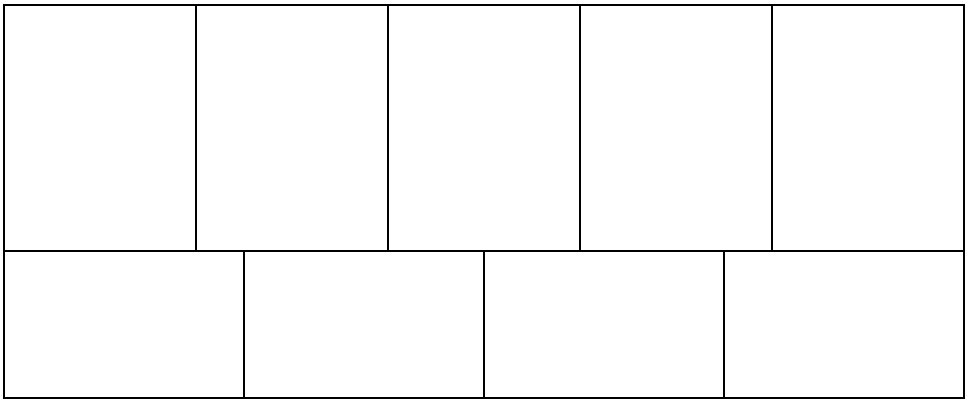
5	The rectangle below consists of nine congruent rectangles. If the area of the largest rectangle is 180 cm^2, what is the perimeter, in cm, of one of the small rectangles?  Picture not drawn to scale.

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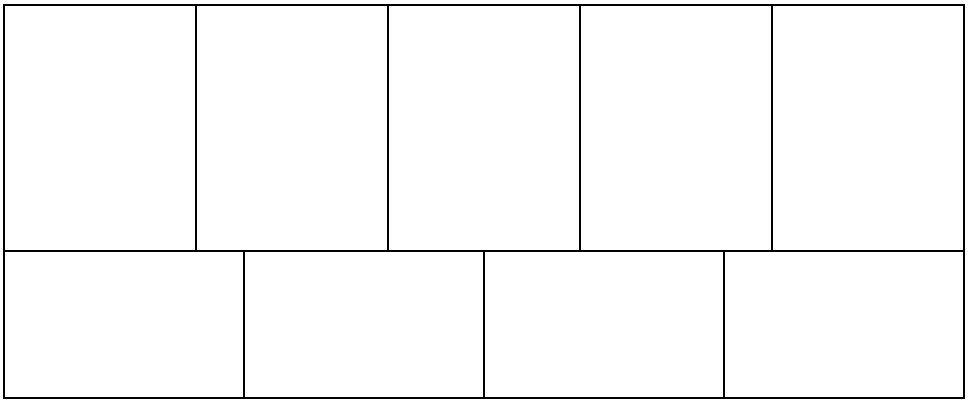
5	The rectangle below consists of nine congruent rectangles. If the area of the largest rectangle is 180 cm^2, what is the perimeter, in cm, of one of the small rectangles?  Picture not drawn to scale.

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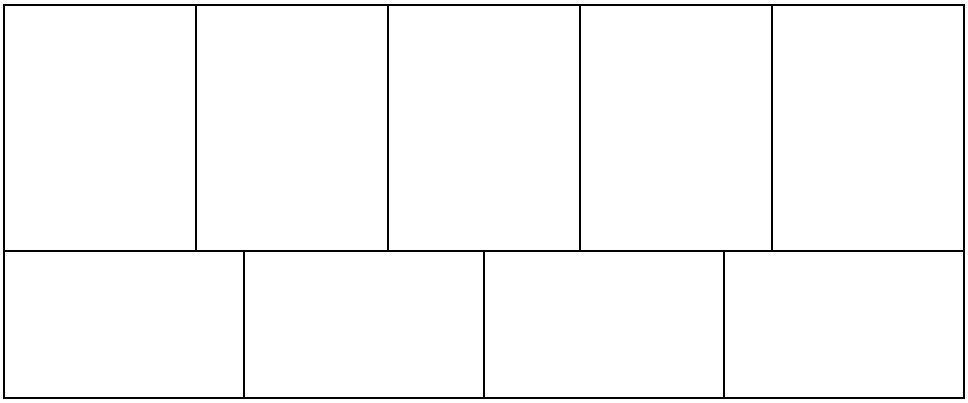
5	The rectangle below consists of nine congruent rectangles. If the area of the largest rectangle is 180 cm^2, what is the perimeter, in cm, of one of the small rectangles?  Picture not drawn to scale.