

MATHCOUNTS[®] Problem of the Week Archive

Pools, Barbecues and Gardening – May 31, 2021

Problems & Solutions

Tate's neighborhood swimming pool opened this past weekend for the summer. At Tate's neighborhood pool, it is estimated that the number of people at the pool on opening day is 253% of the daily average number of people who go to the pool throughout the year. If 432 people came to the pool on opening day, what is the average number of people per day throughout the summer? Express your answer to the nearest whole number.

Let x be the average number of people per day at the pool. We can set up the equation $2.53x = 432$ to demonstrate the situation on opening day. Dividing both sides by 2.53 gives us that $x = 171$ people, to the nearest whole number.

Tate's dad decided this was the perfect weekend to get out the grill for the season. He thought he'd used the current propane tank of gas for approximately 20 hours last summer and thinks each tank lasts approximately 50 hours. If each meal uses an average of 40 minutes of propane, for how many meals will the current tank last?

According to Tate's dad's memory, there is enough propane for $50 - 20 = 30$ hours of grilling. This is equivalent to $30(60) = 1800$ minutes of grilling, which is enough for $1800/40 = 45$ meals.

Tate's mom figured it was the perfect weekend to do some gardening. She found some herbs that need a four-inch space all around the plant. The plant takes up a circle of radius four inches; the sides of the pot and every other plant in the pot must be at least four inches away from each plant. Her pot has a diameter of 14 inches. What is the greatest number of plants that can be planted in the pot?

If we place our first plant four inches from the side of the pot, no other plants can be planted within four inches of that plant. Notice that the plant is four inches from the side of the pot, and if we were to continue that segment out four inches in the opposite direction, it would create a diameter of 8 inches around that plant and go past the middle of the pot since the pot's radius is only seven inches. Therefore, only 1 plant can be planted in this pot according to the space requirements for the plant.

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