

MATHCOUNTS[®] Problem of the Week Archive

It's Wedding Season! – July 8, 2024

Problems & Solutions

In preparation for Tracy's wedding, Lisa decides to throw Tracy a bridal shower. Lisa is planning to make the invitations herself. Each invitation requires 6 inches of ribbon to make a tiny bow on the front. If Lisa needs enough ribbon for 28 invitations, but must buy the ribbon by the half-yard, how many yards of ribbon must Lisa buy? Express your answer as a decimal to the nearest tenth.

*If 28 invitations are needed and each one requires 6 inches (or half a foot) of ribbon, the invitations will require $28 \times 0.5 = 14$ feet of ribbon. This length is equivalent to $14 \div 3 = 4.667$ yards. Since Lisa must buy the ribbon by the half-yard, she is forced to purchase **5** yards of ribbon for the invitations.*

One of the most difficult tasks before a wedding for many couples is to do the seating chart for the reception. Tracy's reception site has tables that seat 8 people or tables that seat 10 people. If Tracy uses the tables that seat 8 people, she will have exactly 2 guests left over. If Tracy uses the tables that seat 10 people, she will have exactly 4 guests left over. Tracy has between 200 and 250 guests. How many guests does Tracy have?

*Knowing that there are 4 people left over if the 10-person tables are used tells us that the number of guests ends with the digit 4. Therefore, we can divide 204, 214, 224, 234 and 244 by 8 and see which of these numbers leaves us with a remainder of 2. There must be **234** guests at the reception.*

One of the final tasks of the wedding day is often to cut the wedding cake. Tracy chose a wedding cake design that is made up of many smaller cakes. Each of the smaller cakes is the shape of a right cylinder with a height of 5 inches and a diameter of 10 inches. Each smaller cake will be cut into exactly 30 pieces. How many cubic inches of cake are in each piece? Express your answer as a decimal to the nearest tenth.

The smaller cakes are each in the shape of a right cylinder, so we will use the volume formula $V = \pi r^2 h$. The cakes each have a radius of 5 inches (since the diameter is 10 inches) and a height of 5 inches, so the volume of each cake is $\pi(5)^2(5) = 392.7$ cubic inches. Dividing this volume into 30 equal pieces yields $392.7 \div 30 = \mathbf{13.1}$ cubic inches per piece of wedding cake.

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