

# MATHCOUNTS<sup>®</sup> Problem of the Week Archive

## *Math in the Middle – August 28, 2017*

### ***Problems & Solutions***

At Tri-City Middle School, half of the 472 enrolled students are taking algebra. One-fifth of the students not taking algebra are taking geometry, and each of the remaining students is taking pre-algebra. How many students enrolled at Tri-City Middle School are taking pre-algebra? Express your answer to the nearest whole number.

*Since the total number of enrolled students at Tri-City Middle School is 472, that means  $472 \div 2 = 236$  students are taking algebra, and 236 students are taking either pre-algebra or geometry. We are told that  $1/5$  of these 236 students are taking geometry, which means that  $1 - (1/5) = 4/5$  of them are taking pre-algebra. Therefore,  $(4/5) \cdot 236 = 188.8 \approx \mathbf{189}$  students at Tri-City Middle School are taking pre-algebra.*

What percent of the students enrolled at Tri-City Middle School are currently taking geometry?

*From the previous problem, we know that  $1/5$  of  $1/2$  of the enrolled students at Tri-City Middle School are taking geometry. Therefore,  $(1/5) \cdot (1/2) = 1/10 = \mathbf{10\%}$  of the students at Tri-City Middle School are taking geometry.*

Ms. Sanchez, a math teacher at Tri-City Middle School, teaches two algebra classes, with 27 students in each class. What fraction of the students currently taking algebra at Tri-City Middle School are in an algebra class taught by Ms. Sanchez? Express your answer as a common fraction.

*Ms. Sanchez has 27 students in each of her two algebra classes, which means that 54 students at Tri-City Middle School are in an algebra class taught by Ms. Sanchez. From the first problem, we know that 236 Tri-City Middle School students are taking algebra. Therefore,  $54/236 = \mathbf{27/118}$  of the students currently taking algebra are in an algebra class taught by Ms. Sanchez.*

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