

MATHCOUNTS[®] Problem of the Week Archive

Math in the Middle – August 17, 2020

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, $(4/5) \times 236 = 188.8 \approx \mathbf{189}$ 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, $(1/5) \times (1/2) = 1/10 = \mathbf{10\%}$ 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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