

# U.S. Falls Short in Measure of Future Math Teachers

By [SAM DILLON](#)

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America's future math teachers, on average, earned a C on a new test comparing their skills with their counterparts in 15 other countries, significantly outscoring college students in the Philippines and Chile but placing far below those in educationally advanced nations like Singapore and Taiwan.

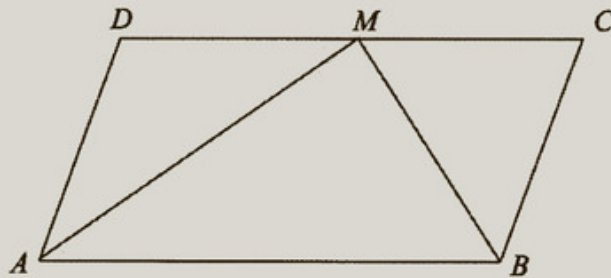
On the figure,  $ABCD$  is a parallelogram,  $\angle BAD = 60^\circ$ ,  $AM$  and  $BM$  are angle bisectors of angles  $BAD$  and  $ABC$  respectively. If the perimeter of  $ABCD$  is 6 cm, find the sides of triangle  $ABM$ .

Write your answers on the lines below.

$AB =$  \_\_\_\_\_ cm

$AM =$  \_\_\_\_\_ cm

$BM =$  \_\_\_\_\_ cm



Answer:  $AB=2$  cm;  $AM = \text{square root of } 3$  cm;  $BM=1$  cm

Testing the Prospective Testers A sample from the test given to future middle school math teachers.

The researchers who led the math study in this country, to be released in Washington on Thursday, judged the results acceptable if not encouraging for America's future elementary teachers. But they called them disturbing for American students heading to careers in middle schools, who were outscored by students in Germany, Poland, the Russian Federation, Singapore, Switzerland and Taiwan.

On average, 80 percent to 100 percent of the future middle school teachers from the highest-achieving countries took advanced courses like linear algebra and calculus, while only 50 percent to 60 percent of their counterparts in the United States took those courses, the study said.

"The study reveals that America's middle school mathematics teacher preparation is not up to the task," said [William H. Schmidt](#), the [Michigan State University](#) professor who was its lead author. To improve its competitiveness, Dr. Schmidt said, the

nation should recruit stronger candidates into careers teaching math and require them to take more advanced courses.

The 52-page report provides the first international comparison of teacher preparation based on a test given to college students in a significant number of countries, he said.

In the study, a representative sample of 3,300 future math teachers nearing the end of their teacher training at 81 colleges and universities in the United States were given a 90-minute test covering their knowledge of math concepts as well as their understanding of how to teach the subject.

There were two distinct tests, for those preparing to teach in elementary schools and for candidates for middle school.

The same tests, developed by an international consortium, were given to college students in 15 other countries, including advanced nations like Germany and Norway as well as underdeveloped ones like Botswana.

On the elementary test, students from Singapore, Switzerland and Taiwan scored far above their counterparts in the United States. Students from Germany, Norway, the Russian Federation and Thailand, scored about the same as the Americans, and students from Botswana, Chile, Georgia, Malaysia, the Philippines, Poland and Spain scored well below, the report said.

On the middle school test, American students outscored students in Botswana, Chile, Georgia, Malaysia, Norway, Oman, the Philippines and Thailand, the study found.

The study found considerable variation in the math knowledge attained at different American colleges, with students at some scoring, on average, at the level of students in Botswana, the study said.

“There are so many people who bash our teachers’ math knowledge that to be honest these results are better than what a lot of people might expect,” said Hank Kepner, professor of mathematics education at the [University of Wisconsin](#), Milwaukee, who is president of the National Council of Teachers of Mathematics. “We show up pretty well here, right in the middle of the pack.”

Gage Kingsbury, a senior research fellow at the Northwest Evaluation Association, which administers math tests in many states and in 60 countries, called the study ambitious but faulted it because of the limited number of advanced countries that participated.

“They don’t have most of Europe,” Dr. Kingsbury said. “And to suggest that you can’t be a good middle school math teacher unless you’ve taken calculus is a leap, because calculus isn’t taught in middle school. So I think they overreach a bit.”

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