

MidMichigan Mathematical Olympiad
April 25, 2009
Solutions Grades 5-6

1. Anne purchased yesterday at WalMart in Puerto Rico 6 identical notebooks, 8 identical pens and 7 identical erasers. Anne remembers that each eraser costs 73 cents. She did not buy anything else. Anne told her mother that she spent 12 dollars and 76 cents at Walmart. Can she be right? Note that in Puerto Rico there is no sales tax.

2. Two men ski one after the other first in a flat field and then uphill. In the field the men run with the same velocity 12 kilometers/hour. Uphill their velocity drops to 8 kilometers/hour. When both skiers enter the uphill trail segment the distance between them is 300 meters less than the initial distance in the field. What was the initial distance between skiers? (There are 1000 meters in 1 kilometer.)

3. In the equality $** + *** = ****$ all the digits are replaced by *. Restore the equality if it is known that any numbers in the equality does not change if we write all its digits in the opposite order.

4. If a polyleg has even number of legs he always tells truth. If he has an odd number of legs he always lies. Once a green polyleg told a dark-blue polyleg "- I have 8 legs. And you have only 6 legs!" The offended dark-blue polyleg replied "-It is me who has 8 legs, and you have only 7 legs!" A violet polyleg added "-The dark-blue polyleg indeed has 8 legs. But I have 9 legs!" Then a stripped polyleg started: "-None of you has 8 legs. Only I have 8 legs!"

Which polyleg has exactly 8 legs?

5. Cut the figure shown below in two equal pieces. (Both the area and the form of the pieces must be the same.)

