

**Grade 6****Problem №1.**

The penny-farthing (shown), also known as a high wheel or high wheeler, was the first machine to be called a "bicycle". It was popular in the 1870s and 1880s, with its large front wheel providing high speeds and comfort.



When the larger wheel makes 10 full revolutions, how many **revolutions** will the smaller wheel have made if the diameters of the two wheels are 54 inches and 18 inches?

**Problem №2.**

Sam has been collecting coins in his piggy bank for some time. One afternoon he decided to open the box. He found that he has collected coins worth \$4.80. If there are equal number of nickels, dimes and quarters, how many coins are in Sam's piggy bank? Note: a dollar is worth 20 nickels, 10 dimes, or 4 quarters.

**Problem №3.**

The shorter side of a rectangular lot is 120 meters. Its longer side is 12 meters less than twice the third of the shorter side. What is the area of the lot, in square meters?

**Problem №4.**

Write numbers in the boxes below so that the sum of the entries in *each three consecutive* boxes is 2005.

		999					888	
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What is the number that goes into the leftmost box?

### Problem №5.

On the annual children's day, the price of a small pack of trail mix was reduced from 50 cents a pack to a lower price. Due to this sale, Mr. Friedman decided to buy every single pack the store had in stock so that he'd hand them out to his class as children's day gifts.

If he paid exactly 31 somoni and 93 dirhams in total, how many packs of trail mix did he buy?

### Problem №6.

A long-distance bus shuttles tourist across a bridge to an island every day. The first bus leaves the mainland station at 10:00 and the last bus leaves the mainland at 16:00. One day the driver noticed that on the 10:00 bus there were exactly 100 tourists, and that on each successive trip, the number of tourists was 4 less than on the previous trip. How many tourists did the shuttle bus take that day, given that the shuttle bus leaves hourly from the mainland station?

### Problem №7.

The tires of a car (four road tires and a full-sized spare) were rotated so that each tire was used the same number of kilometers during the first 30,000 kilometers the car traveled. For how many kilometers was each tire used?

### Problem №8.

In the 4 x 4 square shown, each row, column and diagonal should contain each of the numbers 1, 2, 3, and 4. Find the value of  $K + N$ .

1	<i>F</i>	<i>G</i>	<i>H</i>
<i>T</i>	2	<i>J</i>	<i>K</i>
<i>L</i>	<i>M</i>	3	<i>N</i>
<i>P</i>	<i>Q</i>	1	<i>R</i>