

## Math 5: Handout 8

### Math Battle 1.

1. There are four numbers written on the board: 0, 1, 0, 0. You are allowed to add 1 to any two of them. By repeating this operation, can you make all four numbers equal?
2. An explorer, traveling by car, needs to cross a 750 mile wide desert. Unfortunately, his car can only carry enough gas for 500 miles. He has unlimited supply of gas on one side of the desert, and he can make storage deposits in the desert, bringing the gas there to be used later. Can you find a way for him to cross the desert? How many miles will he have to travel?
3. A horse eats one bucket of hay in 2 days, a cow — in 3 days, a sheep — in 6 days. In how many days a horse, a cow, and a sheep together will eat 3 buckets of hay?
4. A King of the country heard that one of the three knights killed the Dragon. The King ordered them to come to him and asked them who did it. That's the way they answered:

Sir Lancelot: "Sir Galahad killed the Dragon"

Sir Galahad: "Sir Percival killed the Dragon"

Sir Percival: "I killed the Dragon"

It is known that one of them told the truth and two of them lied. Who killed the Dragon?

5. How many times during the day (24 hours) a minute hand passes an hour hand?
6. A class has 28 students. The teacher organized a meeting with parents, and 24 mothers and 18 fathers came to it. How many students had both mother and father at the meeting with parents?
7. In an expression a teacher substituted stars for digits:  $**+***=****$ . It is known that each summand and the result won't change if you write them backwards. Can you figure out the original equality?
8. Three boxes have some nuts. The 1st box has 6 nuts less than the 2nd and the 3rd boxes together. The 2nd box has 10 nuts less than the 1st and the 3rd together. How many nuts are there in the 3rd box?