

Math Awareness Week Competition
2008 Solutions for 3rd-4th Grades

1. In the next line insert "+" signs between the numbers as many times as you want so that the result is a correct equality

$$987654321 = 90.$$

Solution: $9 + 8 + 7 + 6 + 54 + 3 + 2 + 1 = 90.$

2. How can we put 45 rabbits in 9 cells, so that there are different number of rabbits in each cell and none of the cells is empty?

Solution: Label each cell as 1, 2, 3, ..., 9 and put in each as many rabbits as the cell number is.

3. A group of workers had agreed on a very strange payment schedule. Each of them would get \$100 for every day that they had worked, but for every day they did not work will have to return \$25. After 30 days they realised they did not earn any money. How many days the workers did not work?

Solution: The workers earn 4 times more than they have to return per day for not working. So the number of days they did not work is 4 times the number of days they worked. That means 24 days of not working in 30 days.

4. A snail has fallen in a 10 feet deep hole. It started climbing up - every day it would climb 3 feet up but then it would fall 2 feet down while sleeping during the night. After how many days will the snail climb out of the hole?

Solution: Each 24 hour period the snail will climb up only 1 ft. It does that for 7 days, but on the 8th day it goes out of the hole before he falls asleep. Answer: 8 days.

5. There are 3 kids in a family-Anna, Peter and Maria. Anna can clean the house for 1 hour, Peter can do the same job for 3 hours and Maria needs 6 hours. How much time do they need to work to finish the same cleaning if they do it together?

Solution: In 6 hours, Anna will do 6 times the work, Peter will do 2 times the work and Maria will just finish the work. So if they work together they would do 9 times the work required in 6 hours. Answer:40 minutes.