

Old and well-known problems

October 17, 2010

1. Round one

1. Three students preparing for a competition solved three problems (all together) in three days. How many problems will 12 students solve in 12 days?
2. Five students ate 5 bananas in 5 days. How long will it take for 10 students to eat 10 bananas?
3. (*Harder problem*) 6 students drank a gallon of lemonade in 8 hours. How many students will it take to drink a gallon of lemonade in 3 hours?

2. Problems about speed

1. A car goes with the speed of 60km/hr . How should you change the speed to save 1 minute on each kilometer?
2. A fox is chasing a rabbit. The foxes speed is 8m/c and the rabbit's speed is 7m/c . How soon will the fox reach the rabbit if they start 10 meters apart?
3. It take Alyssa 30 minutes to walk from home to UCLA. It takes Liz 40 minutes to cover the same distance. How soon will Alyssa catch up with Liz if Liz starts 5 minutes earlier.
4. A truck covers the distance from the warehouse to the store in 10 hours. If the truck increases its speed by 10 kilometers per hour, it will take it only 8 hours to cover the same distance. What is the original speed of the truck?

3. Continue the sequence

1. Continue the sequence:

O T T F F S S E ...

2. Continue the sequence:

1, 11, 21, 1112, 3112, 211213, 312213, 212223, 114213,

4. More problems

1. Clint gave a hard problem to Group A. The number of boys who solved this problem equals to the number of girls who did not solve it. Are there more students who solved the problem or girls?
2. In the crazy Glass Elevator there are just two buttons. If you press the first, you go 13 floors up. If you press the second, you go 8 floors down. How do you get from 13th floor to the 8th floor. (There are 20 floors in the building).
3. Tie a rope along the equator of the Earth. Similarly, tie a rope around the “equator” of an orange. After that, add a meter to each of the ropes. Since the rope gets longer, there will be a gap between the surface and the rope. (Assume that we position the rope in such a way that the “gap” is the same everywhere). Will the gap be bigger in the case of the orange or in the case of the Earth?