

FAU Math Circle

5/09/2015

Math Warm Up

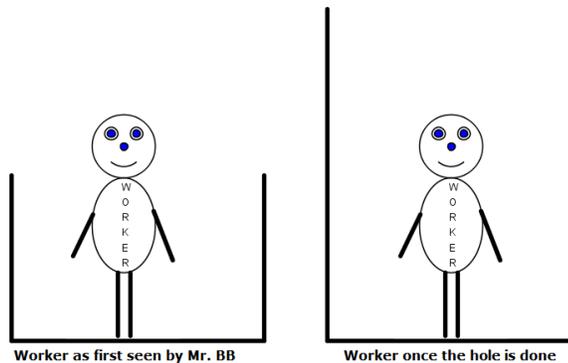
1. I will need three volunteers for this. I will guess what the sum is of five numbers by knowing only the first number. Sort of. You will tell me how it works.

Today's Problems

Rules:

- Work on these problems in any order. You will have until about 3:30 for this activity.
- Work alone or in groups.
- Feel free to get up, walk around the room, write on the white boards with the provided markers.
- At 3:30PM, more or less I will ask for solutions, and we will discuss the solutions. Students or groups who have found solutions, time permitting, can present them on one of the white boards.

1. Homer began peeling a pile of 44 potatoes at the rate of 3 potatoes per minute. Four minutes later Christen joined him and peeled at the rate of 5 potatoes per minute. When they finished, how many potatoes had Christen peeled?
2. On his morning stroll, Mr Busybody encountered a laborer digging a hole. "How deep will the hole be?" he asked. "Guess," replied the workingman, who stood in the hole. "My height is exactly 5 feet and 10 inches and when I'm done digging this hole will be twice as deep as it is now and my head will be **twice** as far below ground as it is now above ground."



How deep will the hole be?

3. If 6 cats can eat 6 rats in 6 minutes, how many cats will it take to eat 100 rats in 100 minutes?

9. From a point A outside of a circle we draw two tangents touching the circle at points B, C , respectively. We then draw a third tangent intersecting segment AB at P , segment AC at R and touching the circle at Q . If $|AB| = 20$, what is the perimeter of triangle APR ? Can one even determine it from the provided data?

