Name _____

Problem Solving: Work Backward

Read and Understand	Plan and Solve	Check
Four students shared some mangoes for lunch, but 2 mangoes were too ripe to eat. The students cut up 4 mangoes, which made up $\frac{1}{3}$ of the mangoes that were left. How many mangoes were there in all? You need to find the number of mangoes the students started with.	Start with the number of mangoes the students cut up. Then work backward to find the original number of mangoes. These were $\frac{1}{3}$ of the mangoes left after the 2 ripe ones were thrown away. 4 mangoes are $\frac{1}{3}$ of 12. So there must have been 12 mangoes left after the ripe ones were discarded. Add the 2 overripe mangoes to the 12. The students started out with 14 mangoes.	Work forward to check your work. Start with 14 mangoes. Subtract the 2 overripe ones to get 12. One third of the 12 mangoes left is 4 mangoes, which is the number of mangoes the students cut up.

Work backward to help you solve each exercise.

1. Phoebe played checkers with her sister. She won 4 times as many games as she lost. Phoebe won 12 games. If there were no ties, how many games did Phoebe play?

_____

2. Kim ordered a super-sized submarine sandwich and had it cut into equal pieces. She and 3 friends ate the same number of pieces. $\frac{1}{4}$ of the sandwich was not eaten. For dinner that night, she ate 3 pieces, which were $\frac{1}{2}$ of the leftovers. How many pieces were there originally?

_____