

Name: _____

1. Mr. Greengrass wants his lawn to be tidy and likes the grass cut short. Because he doesn't like mowing but wants to be able to sit outside and read the paper on Sunday mornings and be proud of the smooth lawn, he decides to hire some good young mowers.

Two kids agree to mow Mr. Greengrass's grass on Saturdays for 15 weeks. To make sure they come every single Saturday, he agrees to pay them, at the end of the 15 weeks \$2 for every week that they mow it – as long as they will give him \$3 for every week that they miss.

At the end of the 15 weeks, they owe him exactly as much as he owes them, which is good news for Mr. Greengrass, but a rotten deal for the kids! How many weeks did they miss?

2. In Idaho, they proudly say they have giant potatoes, and unusual potato sellers. One of the strangest potato sellers is Potato Mo. She never sells her potatoes one at a time, nor in bags of five or ten pounds. She sells potatoes only in pairs!

One day, Cal the cook wanted a potato that weighed just two pounds, so he went and asked Mo what she had available.

"I have only three potatoes left," she answered. "Here they are: A, B, and C."

"A and B together weigh three pounds; A and C together weigh five pounds; B and C together weigh four pounds. You can have any pair you want."

Can you help Cal the cook buy a pair of potatoes? Which if any of the potatoes weighs exactly two pounds?

3. Alex was hosting a party – entertaining some friends. She had planned a specially elegant dinner and wanted a cube of cheese as part of the appetizer display.

Looking in the refrigerator, she found she did have some cheese, but it was in the form of a complete sphere; in other words, a ball of cheese. Well, she would simply have to cut a cube of cheese from the cheese ball.

Alex can't resist a puzzle so she spent most of the time as she prepared dinner wondering how to cut the sphere of cheese into a cube quickly; that is, using the fewest number of cuts.

What is the smallest number of cuts you have to make to cut a cube from a sphere?

4. Three witches were mixing up a dreadful mathematical spell in their cauldron and one of them – Fat Freddy – was reading out the recipe to the others:

*Eye of newt and toe of frog
Wool of bat and tongue of dog*

Suddenly they realize they needed some liquid – 2 pints of armpit sweat. They had a bucketful of sweat, a saucepan that when full held exactly 3 pints, and a jug that when full held exactly 1 pint. How can they get exactly 2 pints?

5. On her breakfast tray, Aunt Lily had a little vase of flowers – a mixture of primroses and celandines. She counted up the petals and found there were 39. “Oh how lovely!” she said, “exactly my age; and the total number of flowers is exactly your age rose!”

*Primroses have five petals on each flower.
Celandines have eight petals on each flower.*

How old is Rose?