1. NCTM Dec/Jan 2015/16 #11

Simplify the following expression:

$$\left(\sqrt{4+\sqrt{4+\sqrt{4}}}\right)^4$$

2. Find a if $\sqrt{a}(\sqrt{14}) = 2\sqrt{7}$

3. Given a, b, and c are all positive integers and are not equal to 1. Find $a+b+c$.

$$\sqrt[3]{128x^a y^b w^c} = 4xy^2\sqrt[3]{2x^2w^c}$$

General Novel Problems

4. NCTM Sept 2014 # 2

Given the following system of equations—

$$\begin{cases} 9x-6y=21 \\ 6x-4y=k \end{cases}$$

—find the value of k such that the system has an infinite number of solutions.