Problem 13. Find all real number $x$ such that

$$x \lfloor x \lfloor x \lfloor x \rfloor \rfloor \rfloor = 50.$$ 

For real number $x$, $\lfloor x \rfloor$ is equal to the greatest integer less than or equal to $x$. For example, $\lfloor \sqrt{2} \rfloor = 1$, $\lfloor -3.9 \rfloor = -4$, and $\lfloor 10 \rfloor = 10$. Include all work leading to your answer.

Solutions due by 10:00am Monday, April 20, 2015.