

Math Diversion Problem 770

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Keep an open mind. That's the secret.

— Doctor Who

Source: <https://www.youtube.com/watch?v=s85rHbSol1I>

Title: Solving a 'Harvard' University Entrance Exam

Presenter: Math Olympiad

1 Problem

Given the relation

$$(k + 9)^2 = 81, \tag{1}$$

find the real values of k .

2 Solution

We can solve this by inspection. First, the equation is a quadratic in k , hence there are only two solutions for k . We see immediately that $9^2 = 81$, therefore, one obvious solution is $k = 0$. But also, $(-9)^2 = 81$, so $k = -18$ is also a solution, and we're finished.