

# The Square Root of One Percent (SROP)

**History** teaches us that for a movement to reach a critical mass and ultimately affect change, only a committed few are required to be the champions of that change. Intuitively, we can think of many examples where just a few people created massive change for both good and evil. Adolph Hitler and his National Socialist Party were at first only a small minority of the German population and yet they not only supplanted the body politic of that nation but began a campaign of conquest which would shake the world to its core. These small seeds of change and committed few are what drove Mao's cultural revolution, Mahatma Gandhi's independence movement, Martin Luther King's civil rights movement, the Russian Bolshevik Revolution, the birth of the Greek and Roman Empires and even Christianity, Islam, Buddhism and Hinduism. These movement's, irrespective of whether we consider them to be benevolent or malevolent, had to first reach and then pass through a threshold of critical mass of committed followers before they precipitated a chain reaction which drove change. The exact moment in time when this critical mass is achieved may be lost to history in most examples but there are a few where the historical record lends itself to detailed examination of this phenomenon. By studying prominent historical events, it can be shown that the number of committed people within a population, required to affect revolutionary change is approximately equal to the square root of one percent (SROP) of that target population.

The Square Root of One Percent (SROP) appears to be a universal constant as opposed to a human construct, similar to other universal constants such as pi or the speed of light. These constants exist whether we recognize them or not. It is incumbent on humans to discover the hand of the great mathematician and to recognize that such constants are true.

## Case Study 1: *The American Revolution*

The American Revolution is a movement for which there is sufficient data to “back extrapolate” when and how SROP was achieved. It is important to remember that the American Colonists were the subjects of the British Crown which at the time was the world’s superpower. It would have been ludicrous to think that these colonists could rise up against the military juggernaut that was the British Empire. In fact, every colonist was a British subject and taking up arms against their own government was in fact treason, punishable by death. Indeed, every American colonist who engaged in this insurrection knew full well that what they were doing would be interpreted as treason if they lost. Benjamin Franklin, upon signing the Declaration of Independence said, “We must indeed, all hang together or most assuredly we shall hang separately.”

SROP – The American Revolution developed over a long period of time but is generally thought to have been triggered by the first battle on April 19, 1775 when the first shots at Lexington and Concord were fired in Massachusetts.

There are several estimates for the population of America in 1775 and Census.gov estimates it at 2,500,000. Based on census data from the web site [https://web.viu.ca/davies/H320/population\\_colonies.htm](https://web.viu.ca/davies/H320/population_colonies.htm) the population in 1770 was 2,148,076 and in 1780 it was 2,780,369. Doing a linear extrapolation between these two numbers we arrive at 2,464,222 people. One percent of this population is 24,642 people. George Washington’s army in 1775 is estimated to have been between 20,000 and 27,000 men strong, although this number varies throughout the course of 1775. If we take the average of these 2 numbers, we get 23,500. The size of Washington’s army was only slightly more than 1% of the American population. If we take the square root of the size of Washington’s army, we get 156.



The Declaration of Independence was signed by 56 men on August 2, 1776 and as Benjamin Franklin states all would have been hanged.

Washington had, 29 Major Generals, 49 Brigadier Generals, 61 Militia Leaders, 7 Continental Navy leaders according to [https://en.wikipedia.org/wiki/List\\_of\\_military\\_leaders\\_in\\_the\\_American\\_Revolutionary\\_War](https://en.wikipedia.org/wiki/List_of_military_leaders_in_the_American_Revolutionary_War)

Including Washington, the number of top military leaders who would also have been hanged is 147. This is 9 shy of 156 but it is very likely that Great Britain would have had a no difficulty hanging at least 9 more seditious Americans. It may have also been possible that 47 of Washington’s military leaders would have been spared. This may have been possible because some of the leaders cooperated with the British such as Benedict Arnold. These 100 along with 56 signers of the Declaration equal 156.

The First Continental Congress was attended by delegates of 12 of the 13 colonies on September 5, 1774. Coincidentally,  $12 \times 13 = 156$ .

In this analysis I try to focus on the number of men who would have certainly been hanged had they not succeeded in revolution and thus those men most committed to their cause. Clearly, these numbers and people can be shuffled in any number of ways to give any almost any value desired. However, the basics of the population, army size, and patriots that would have been hanged are all approximately equal to SROP.

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