

Fourscore and seven years ago our fathers brought forth on this continent a new nation, conceived in liberty and dedicated to the proposition that all men are created equal.

Now we are engaged in a great civil war, testing whether that nation or any nation so conceived and so dedicated can long endure. We are met on a great battlefield of that war. We have come to dedicate a portion of it as a final resting place for those who died here that the nation might live. This we may, in all propriety do. But in a larger sense, we cannot dedicate, we cannot consecrate, we cannot hallow this ground. The brave men, living and dead who struggled here have hallowed it far above our poor power to add or detract. The world will little note nor long remember what we say here, but it can never forget what they did here.

It is rather for us the living, we here be dedicated to the great task remaining before us—that from these honored dead we take increased devotion to that cause for which they here gave the last full measure of devotion—that we here highly resolve that these dead shall not have died in vain, that this nation shall have a new birth of freedom, and that government of the people, by the people, for the people shall not perish from the earth.

Fourscore and seven years ago our fathers brought forth on this continent a new nation, conceived in liberty and dedicated to the proposition that all men are created equal.

Now we are engaged in a great civil war, testing whether that nation or any nation so conceived and so dedicated can long endure. We are met on a great battlefield of that war. We have come to dedicate a portion of it as a final resting place for those who died here that the nation might live. This we may, in all propriety do. But in a larger sense, we cannot dedicate, we cannot consecrate, we cannot hallow this ground. The brave men, living and dead who struggled here have hallowed it far above our poor power to add or detract. The world will little note nor long remember what we say here, but it can never forget what they did here.

It is rather for us the living, we here be dedicated to the great task remaining before us—that from these honored dead we take increased devotion to that cause for which they here gave the last full measure of devotion—that we here highly resolve that these dead shall not have died in vain, that this nation shall have a new birth of freedom, and that government of the people, by the people, for the people shall not perish from the earth.

Now, if we can prove

$$\left(2\sqrt{\frac{a}{b}}\right)^m + \left(2\sqrt{\frac{b}{a}}\right)^m \geq 2^{m+1}$$

then we will be done. Dividing both sides of this inequality by 2^m yields

$$\left(\frac{a}{b}\right)^m + \left(\frac{b}{a}\right)^m \geq 2,$$

which we can verify easily by AM-GM on the reciprocals that make up the LHS, thus we have our desired

$$\left(1 + \frac{a}{b}\right)^m + \left(1 + \frac{b}{a}\right)^m \geq \left(2\sqrt{\frac{a}{b}}\right)^m + \left(2\sqrt{\frac{b}{a}}\right)^m \geq 2^{m+1}.$$

Now, if we can prove

$$\left(2\sqrt{\frac{a}{b}}\right)^m + \left(2\sqrt{\frac{b}{a}}\right)^m \geq 2^{m+1}$$

then we will be done. Dividing both sides of this inequality by 2^m yields

$$\left(\frac{a}{b}\right)^m + \left(\frac{b}{a}\right)^m \geq 2,$$

which we can verify easily by AM-GM on the reciprocals that make up the LHS, thus we have our desired

$$\left(1 + \frac{a}{b}\right)^m + \left(1 + \frac{b}{a}\right)^m \geq \left(2\sqrt{\frac{a}{b}}\right)^m + \left(2\sqrt{\frac{b}{a}}\right)^m \geq 2^{m+1}.$$

0.1 In This First Section

This is the first section.

0.1.1 We Have This First Subsection

This is the first subsection.

And This Subsubsection

A subsubsection.

And This Paragraph A notable paragraph.

And This Subparagraph A notable subparagraph.

And Then This Subsubsection

0.2 The This Second Section

0.2.1 We Have This Subsection

When I was born, I was small. Actually, I was very small. When I got older, I thought some day I would be large, maybe even gigantic. But instead, I'm not even normalsize. I'm still small.

When something is *really*, **really** important, you can underline it, *italicize it*, **bold it**. If you ***must do all three***, then you can nest them.

You may want to write things in a sans-serif font, or in a typewriter font, or in a slanted font (which is *slightly different* than italics). Sometimes it pays TO WRITE THINGS IN SMALL CAPITALS. You can next go to **bold and then *bold and slanted* and then back to just bold** again.

When Mr. Rogers read this, he was confused because the first sentence was only two words long. Mrs. Rogers wasn't confused at all.

$x + y$

$x + y$

$x + y$

$x + y$

$x + \quad y$

$x + \quad \quad y$

$x + y$

I like space.

In every direction.

I like space.

In every direction.

Fourscore and seven years ago our fathers brought forth on this continent a new nation, conceived in liberty and dedicated to the proposition that all men are created equal.

Now we are engaged in a great civil war, testing whether that nation or any nation so conceived and so dedicated can long endure. We are met on a great battlefield of that war. We have come to dedicate a portion of it as a final resting place for those who died here that the nation might live. This we may, in all propriety do. But in a larger sense, we cannot dedicate, we cannot consecrate, we cannot hallow this ground. The brave men, living and dead who struggled here have hallowed it far above our poor power to add or detract. The world will little note nor long remember what we say here, but it can never forget what they did here.

It is rather for us the living, we here be dedicated to the great task remaining before us—that from these honored dead we take increased devotion to that cause for which they here gave the last full measure of devotion—that we here highly resolve that these dead shall not have died in vain, that this nation shall have a new birth of freedom, and that government of the people, by the people, for the people shall not perish from the earth.