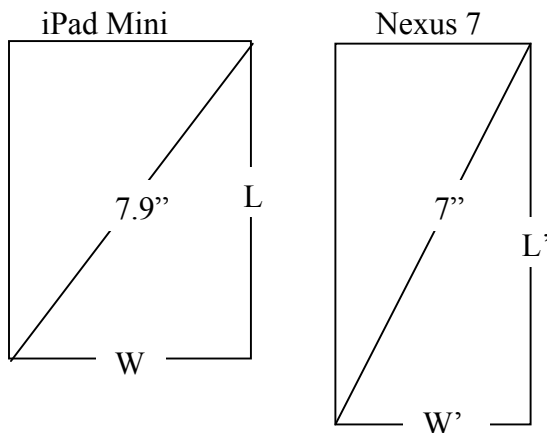


How can a 7.9" iPad screen be 60% larger than a 7" Nexus 7 Screen?

In Apple's announcement on 23 October 2012, Phil Schiller said that the 7.9" iPad screen is 60% larger than the competitor's 7" screen. That got me thinking I should dust off my high school geometry skills and see if it was possible that was true.

We actually can figure this out because we have two things – not just the diagonal measurement, but also the screen resolutions which tells us the aspect ratio.

- iPad Mini: 7.9" diagonal, 1024x768 resolution
- Nexus 7: 7" diagonal, 1280x600 resolution



From our high school geometry we know two things. The Area is the Length x Width, or  
 $A = L \times W$

We don't know L and W but we do know their ratio, based on the resolutions. Let's start with the iPad Mini. The ratio of Length to Width is:

$$\frac{L}{W} = \frac{1024}{768} = 1.33$$

Or in another form:

$$L = 1.33 * W$$

Now we're going to bring in our old pal Pythagoras, who says that the diagonal (D) is equal to the square root of the sum of the squares. In other words,

$$D^2 = L^2 + W^2$$

Or specifically for the iPad Mini:

$$7.9^2 = L^2 + W^2$$

Let's substitute our equation for L into the Pythagorean theorem:

$$7.9^2 = (1.33W)^2 + W^2$$

$$7.9^2 = 1.77W^2 + W^2$$

$$7.9^2 = 2.77W^2$$

$$22.53 = W^2$$

$$W=4.75$$

And now let's substitute W back into our original ratio equation

$$L = 1.33 * 4.75 = 6.31$$

So

$$A = L * W = 4.75 * 6.31 = \mathbf{30 \text{ square inches for the iPad}}$$

Running through the same math for the Nexus 7 (with less detailed explanation)

$$\frac{L}{W} = \frac{1280}{600} = 2.13$$

$$L = 2.13W$$

$$7^2 = (2.13W)^2 + W^2$$

$$7^2 = 4.54W^2 + W^2$$

$$7^2 = 5.54W^2$$

$$W = 2.97$$

$$L = 2.13W = 2.13 * 2.97 = 6.33$$

So the area for the Nexus 7 is then:

$$A = 6.33 * 2.97 = \mathbf{18.8 \text{ square inches for the Nexus 7}}$$

And finally, the ratio of the iPad screensize to the Nexus 7 is then:

$$\frac{30}{18.8} = 1.60 \text{ or } 60\% \text{ more screen realestate}$$

So Phil Schiller was right when he said the iPad Mini has 60% more screen real estate than the Nexus 7.