All about PPI (Pixels Per Inch)
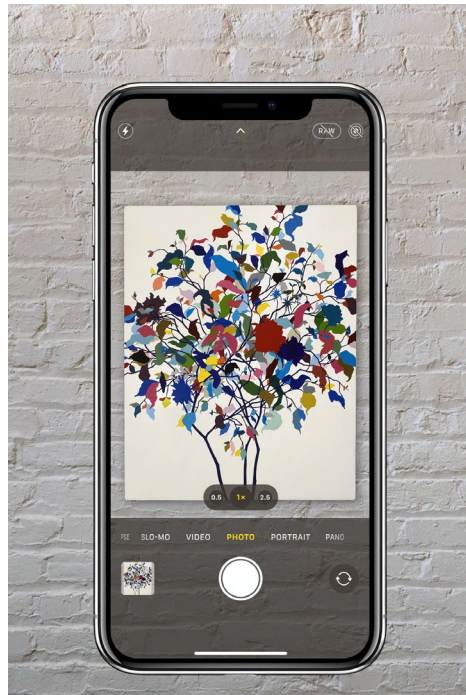
Short explanation:

PPI, or "Pixels Per Inch," represents how many pixels are in one inch of space on the canvas. The iPhone X captures about 4,000 pixels across, so if you fill the shot with a 40" painting, you get a photo with 100 PPI.

If this painting was 40" tall, and the shot is 4000 pixels tall, then each inch has 100 pixels in it!

However, if you take a few steps back, the painting will appear smaller than before. For example, if the painting only takes up half of the photo now, then just half of the 4000 pixels are on the artwork.
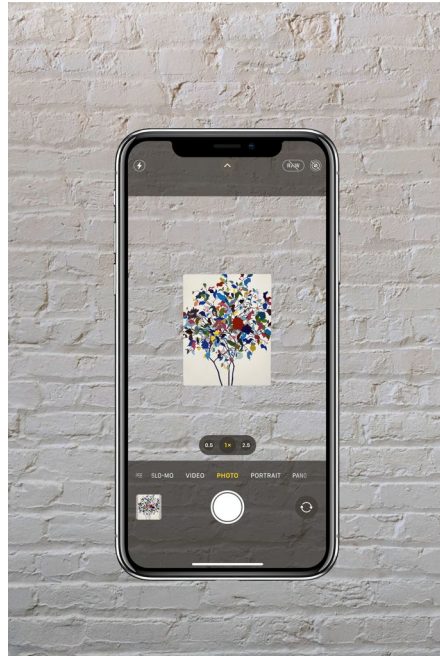
After taking a step a few steps back, the 40" painting looks quite a bit smaller!

So instead of 4,000 pixels on a 40" painting, you have 2,000 pixels of a 40" painting, giving you 50 PPI.

This effect works in the other way, too. The closer you take the photo, the higher the PPI.

*Getting close makes for many pixels per real-world inch.*

Artzip lets you take photos so close that you can't even see the entire painting and then combines them together so you can! Now, your shots can easily capture 200 pixels per inch or more. That comes out to 8000 pixels on a 40" piece - more than twice as high as a 4K TV,

Long explanation:

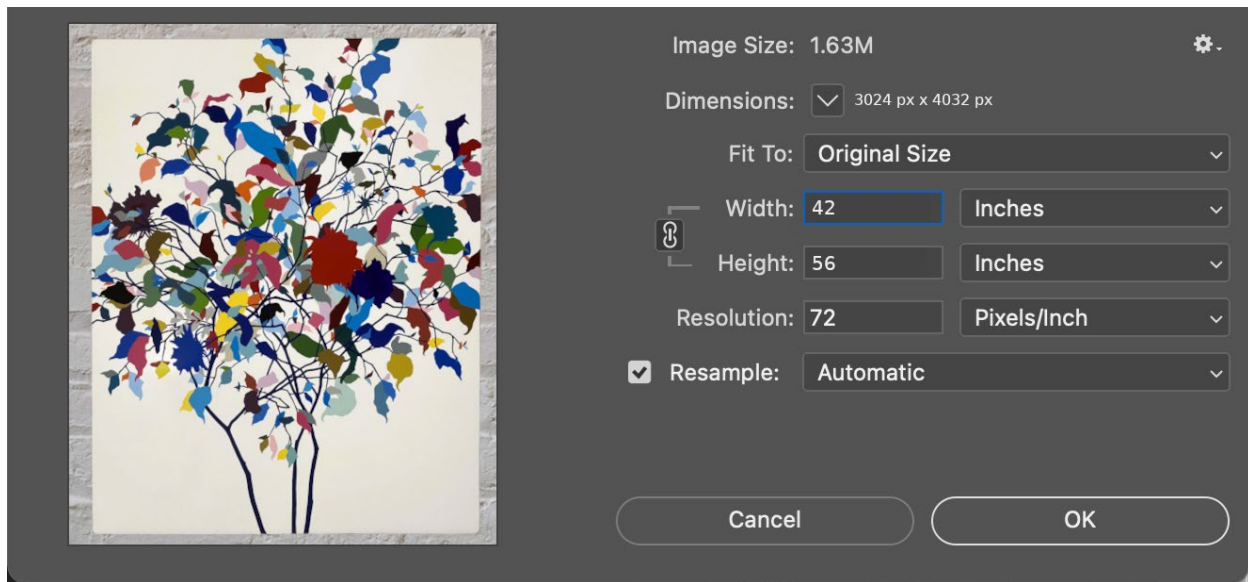To explain, let's pretend we are taking a picture of this piece with an iPhone 12 Pro Max.

First, we'll take a single photo and see if we can figure out the PPI of that photo.
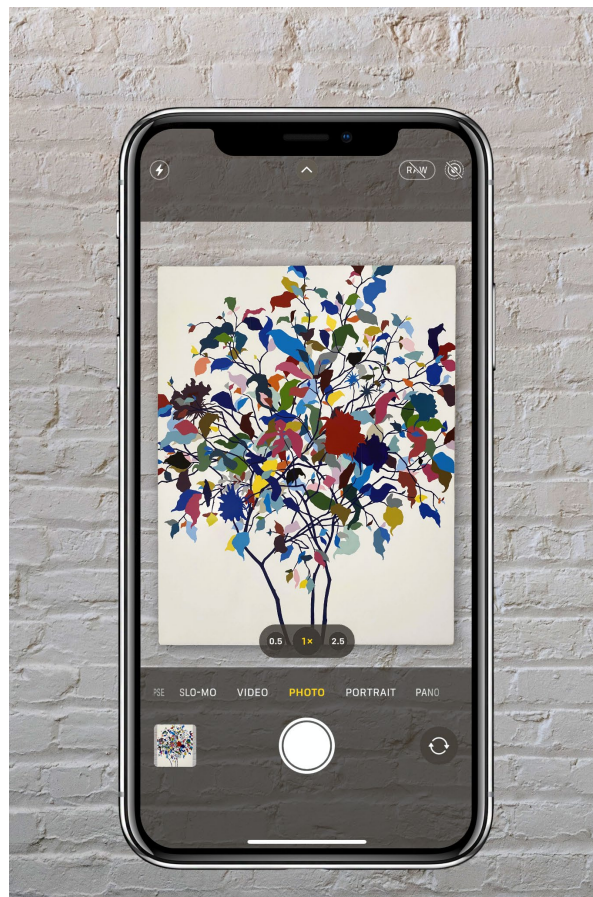
The photo we took

So, we took our photo -- and we opened it in Photoshop, and we saw this:

Hey, what gives?

Wait, what? How can the photo possibly be 42 by 56 inches? I know that this piece is 24" by 30" -- why does Photoshop think it is 42" by 56"? That doesn't make any sense!

So we do a bit of digging and some research and find out that 72 px/inch is the "default" setting for pixels per inch because of old screens from the 80s. Not fun.

We want to print this piece, and the printer told us that we need to have at least 240 pixels per inch, so we need to know how we find out how many pixels per inch this picture has.

Well, it turns out that some simple math can help us here!

We know that our picture is 3024px by 4032px, and we know that our piece is 24" by 30", and it happens to take up most of the picture.

So, to figure out roughly how many "pixels" there are "per inch" in this picture, all we need to do is divide 3024 by 24!

With some simple math, we can figure it out!

Well, we figured out that the picture we took has 126 pixels per inch, so we know that for every "inch" in reality, our picture has 126 pixels… that's great, but the printer told us we need to have at least 240 pixels per inch to make a decent print that is the same size as our piece.

Well, that's where Artzip comes in -- Artzip allows us to take multiple pictures of our piece and stitch them together into one coherent image!

With that in mind, based on what we just figured out, we know that if we get closer to the piece, we can increase the number of pixels per real-world inch in our picture. Let's do it.

A new perspective on prints!

So we took another picture and then stepped through the same process we did before to figure out if we had enough PPI to make a quality print.

3024 Pixels

8 Inches

3024 Pixels ÷ 8 Inches
=
378 Pixels Per Inch (PPI)
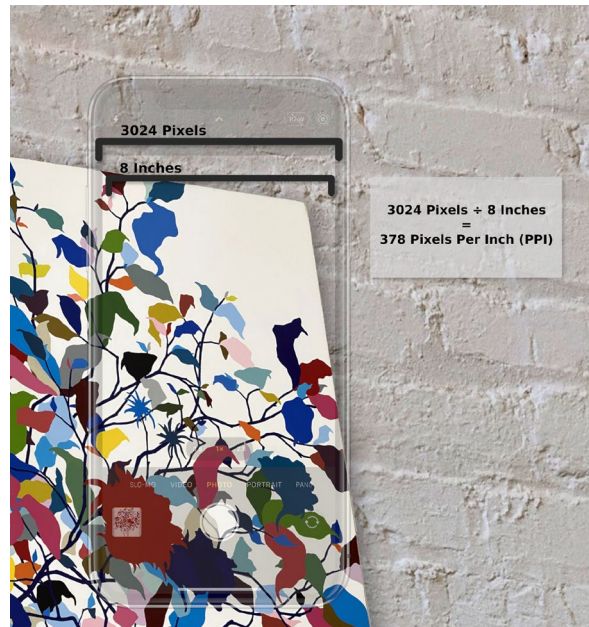
The math checks out!

Fantastic! Based on our calculations, we found out that by getting closer to the piece before taking a picture of it, we could increase the number of pixels to real-world inches to 378! That

means that if we take more photos and put them into Artzip, the resulting image will be close to that 378 pixels per inch!

A few photos later...

After taking a few more images, we were able to capture our 24" wide piece in 6 shots, each shot having roughly 8" x 10" worth of content and 3024 x 4032 pixels, so each picture of our work has 378 pixels per inch.

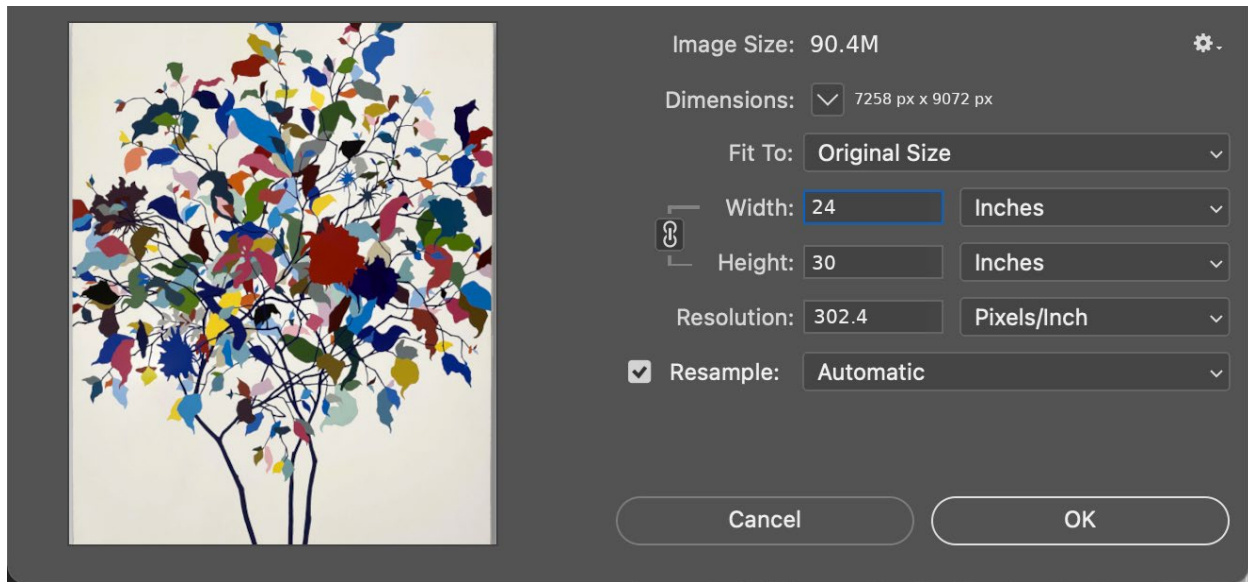Now it's time for Artzip to work its magic!

Artzip glues it all together with cool technology!

After a few minutes, the application delivers our final image ready for print, so we open it up in Photoshop and see something incredible...

We have enough pixels per real-world inch to print!

Artzip took the multiple images we captured, and after subtracting the overlap between them (about 20%), was able to produce an image that has 302.4 pixels per inch -- well over the 240 pixels per inch that the printer asked for.

Awesome!