

Simple Math for Quilters

Basic Magic Numbers Every Quilter Needs to Know:

We need to know the **FINISHED** size of the piece we need to cut – that is – the size it will be AFTER it is sewn into the quilt.

1. **SQUARES and RECTANGLES:** add 1/2" to the Finished size. A 2" Finished square would be cut 2.5" x 2.5"; a 2" x 4" Finished rectangle would be cut 2.5" x 4.5"
2. **HALF SQUARE TRIANGLES (HSTs):** add 7/8" (.875) to the Finished size, cut in half **once** on the diagonal. You may choose to add 1" instead – to create a bit of insurance. You will have to "trim to size" once sewn. The "trim to" size is simply 1/2" larger than the Finished size – just like ALL squares and rectangles.
3. **QUARTER SQUARE TRIANGLES (QSTs):** add 1.25" to the Finished size, cut in half **twice** on **both** diagonals. These can also be oversized – add 1.5" to Finished size to oversize. Then "trim to" 1/2" larger than the Finished size. It is a square, and that is still the rule – just like Half Square Triangle squares and plain squares.

Let's practice with this simple project, a little Table Topper, about 17" square:



The **Shoo-Fly Blocks** are 6" Finished so the floral print square in the middle is cut 6.5"

I like to make HSTs with an HST ruler – see how to make this block here: [Shoo Fly blocks](https://bbquiltmaker.blogspot.com/2017/01/sew-long-part-2-shoo-fly.html)

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The **Perimeter Triangles** (sides/top/bottom – but NOT corners – of the Table Topper) are Quarter Square Triangles. We want the LONG side of the triangle - which is along the outer edge – to be on the Straight of Grain. We need to do a bit more math.

We know the SHORT side of the Quarter Square Triangle **finishes** at 6" because it is sewn to the 6" Shoo Fly Blocks.

To figure the length of the LONG side, **MULTIPLY** 6" x 1.4142 (another Magic Number – the square root of 2". Don't worry – there will not be a test at the end.)

$6" \times 1.4142 = 8.4852"$. That is pretty darn close to 8.5" so we will round up to 8.5" as the Finished size of the LONG side of the QST.

Because we are figuring a QST, from the Magic Numbers above, we now add 1.25" to that 8.5" to equal 9.75". This is the size square to cut – **diagonally** – **twice** – that will yield 4 QSTs the correct size. I like my blocks to "float" just a bit, so I round up to 10" and cut.

The four **Corner Triangles** are Half Square Triangles. We want the SHORT sides of the triangles – which are along the outer edge – to be on the Straight of Grain.

We know the LONG side of the HST will measure 6" Finished because it is sewn to the 6" Shoo Fly Blocks. To figure out the SHORT side measurement, **DIVIDE** 6" by 1.4142.

$6" \div 1.4142 = 4.24268"$. That's pretty darn close to 4.25", so we round up to 4.25" as the Finished size of the SHORT side of the HST.

Because we are figuring HSTs, from the Magic Numbers on page 1, we now add 7/8" (.875") to 4.25" to equal 5.125". This is the size squares to cut (you'll need 2) to get the 4 HSTs needed for the four Corner Triangles. Again, I like that "float", so I round up and cut two 5.5" squares, then cut them each in half **once** on the **diagonal**. I can always trim them down if I like once the top is sewn.. (You could use 5.25" for less "float". You decide.)



Assemble the table topper in **diagonal** rows. Trim to allow for 1/4" seam allowances along the outer edges. Add batting and backing, and a binding to finish.



I designed a sew-a-long a few years back to practice using these Magic Numbers. All 5 posts are still there. An excellent step-by-step project with lots of photos. [How to Make a Quilt in 5 Easy Steps](https://bbquiltmaker.blogspot.com/2017/02/sew-long-part-5-finishing-your-quilt.html).
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Follow Barbara Black / My Joyful Journey. Barbara is an award-winning quilter – Red and White – By the Numbers, selected as the commemorative quilt for the 40th Anniversary of the International Quilt Festival, Houston, TX. She also teaches, lectures, and offers quilting workshops around the USA.