

## Calculating Fabric Amounts for Rugs

### Demo with Christine Manges for Rug Braiders International

There are various ways to calculate fabric amounts for rugs.

1. Quick and Dirty
2. Quick and Dirty, modified for fabric weight and shape
3. Calculations based on Loop Count
4. Calculations based on Weight – from Karen Levendusky
5. Do I have enough left for the next row?

#### 1. Quick and Dirty: Area in Sq. Feet = Yards of Fabric.

Example: a 6 foot X 9 foot rug (oval or rectangle) equals 54 square FEET, using L X W to get the area of the rug. In the quick and dirty estimation, 54 YARDS of fabric is needed. (This is often an overestimate).

Note: the area of oval and rectangular rugs is treated the same, L X W, by tradition when using this method.

#### 2. Quick and Dirty Modified for 2 Different Wool Weights & Shape

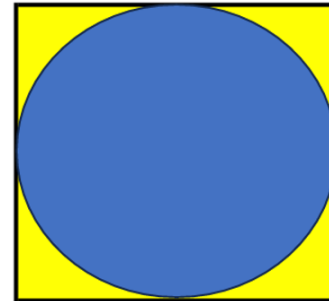
Info from Country Braid House's Presentation.

TIP SHEET FOR CUSTOM BRAIDED RUGS – Country Braid House

Two different weights of wool are available, each of which results in a different size braid: flannel-weight, a lighter wool, makes about a 3/4" wide braid. Coating-weight, a heavier wool makes about a 1" wide braid. Both styles wear equally well.

##### Wool Estimation

|              | 1 SQFT of RUG = 1 Yard Wool |              |
|--------------|-----------------------------|--------------|
|              | Square/Rectangle            | Circle/Round |
| Light Weight | 100%                        | 75%          |
| Heavy Weight | 80%                         | 60%          |



Example: 6' x 6' = 36 SQFT

|              | Square | Circle |
|--------------|--------|--------|
| Light Weight | 36 Yds | 27 Yds |
| Heavy Weight | 29 Yds | 22 Yds |

Example (above, and left) shows a yellow square with sides of 6 feet. The blue round has a diameter of 6 feet.

Using L X W, 6' X 6' is the area for a square, or 36 square feet. This amount in *SQ FT* is the amount needed in *YARDS* for a square rug IF using lighter, flannel-weight wool.

Multiply by the percentages shown if using heavy-weight wool or if making a circle.

Example: I'm braiding a 4' diameter circle with heavy-weight wool. Area estimated is 4' X 4' = 16 square feet; multiply by 60% = 9.6 yards.

### 3. Calculations Based on Loop Count

This method relies on knowing two measurements:

- Your **Braid Gauge** with Current Fabric (Loops per Length of Selvage-to-Selvage Strip)
- How Many **Loops Are in Each Row** of the Rug

#### A. Determine Braid Gauge per Selvage-to-Selvage (S2S) Strip

Why use this strip size, specifically? Because it enables you to precisely determine the length of wool yardage you need. If you are working with recycled wool, which will be of variable lengths, it might be easier for you to calculate based on fabric weight (see section 4).

- |                                                                         |                                   |
|-------------------------------------------------------------------------|-----------------------------------|
| 1. Tear three strips your standard strip width from selvage to selvage. | My numbers                        |
| Strip Width (SW): _____ inches                                          | 1.5"                              |
| S2S Strip Length: _____ inches                                          | 61"                               |
| 2. Place 3 strips on a Start Pin and braid to the very end. Clamp.      |                                   |
| 3. Count the number of loops braided.                                   |                                   |
| Loop Count/ Braid: _____ loops/Braid                                    | <b>(Braid Gauge)</b> 64 lps/braid |
| 4. Measure the length of the braid:                                     |                                   |
| Braid Length: _____ inches                                              | 37.5"                             |

#### B. Strips in a Yard of Fabric

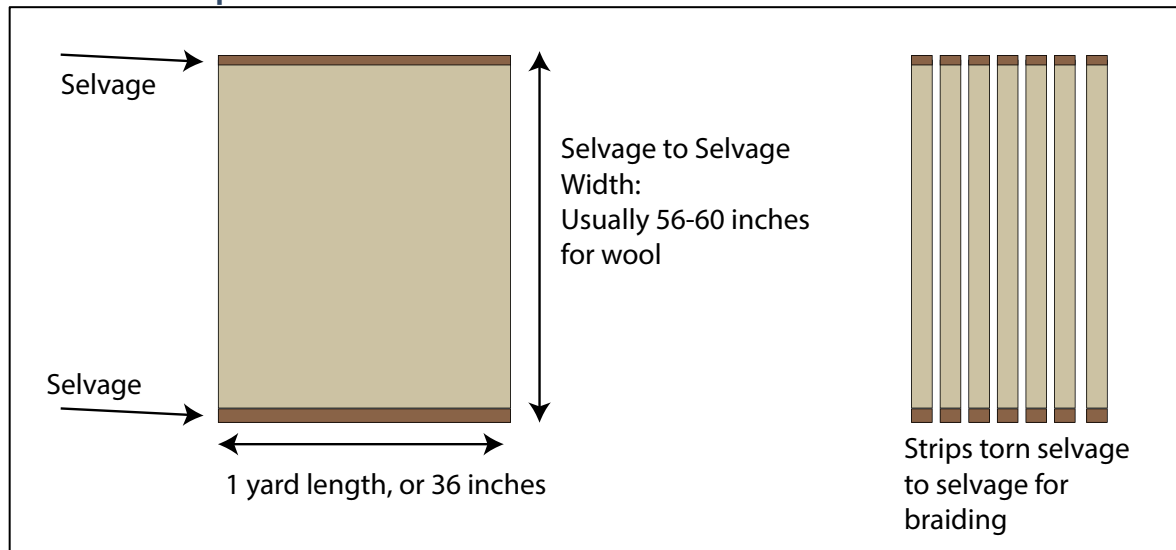


Diagram shows a yard of wool fabric, which is 36" L X 56-60" W. Tear strips from selvage to selvage to calculate fabric requirements.

#### 1. Strips in One Yard of Fabric

Divide the length of one yard (36 inches) by your Strip Width.

Example: My Strip Width is 1.5".

$36" / 1.5" = 24$  strips per one yard of fabric.

### C. Determine the Number of Loops per Row of the Rug

Assuming your increase pattern is the same as mine, you can use the loop counts per row for standard shapes, such as Rounds and Squares. For other shapes, such as Ovals and Rectangles, you have to calculate based on what you choose for the initial length of Row 1.

For example, ovals are the same except on curves, but differ in loop count along the sides. “ $x$ ” is the loop count on one side of Row 1 (excluding double corners). “ $x$ ” should be a multiple of 3 for butted oval rows.

Charts with Loops per Row are available at the back of the handout for Round, Oval, and Square Rugs.

### How to Use the Charts of Row Numbers

*Tip:* ALWAYS round up fabric amounts calculated. There is extra needed for seams, butting, and mistakes.

#### 1. Find the total fabric amount required for oval rug

- If you are making a continuous oval that has 15 rows, then go to Row 15 in the “Sum” column and find: “ $30x + 1114$ ”.
- Let’s assume 20 loops in Row 1 between the T-Start (include T loops) and the first double corner. Fill in  $x = 20$  loops and get  $600 + 1114 = 1714$  loops in the whole rug.
- Divide the Total Loop Count of 1714 by your braid gauge to figure out the fabric required: my Braid Gauge is 64 loops/braid. 1714 loops divided by 64 loops/braid means that: \*\*\*I will need 27 strips for ONE STRAND of the fabric; 27 strips X 3 = 81 strips for THE BRAID (3 strands).
- Multiply the total number of strips by the Strip Width to get the yardage for three strands: 81 strips X 1.5” = 121.5 inches of length in 60” wide yardage. (If one strand is all you want, then 27 strips X 1.5”/strip = 40.5” yardage for each strand).
- Divide the fabric yardage length in *inches* (121.5”) by 36” to get the length in *yards*: 3.375 or 3-3/8 yards of fabric.

#### 2. Find the fabric required for a band in blue for butted rows 14 -17 of an oval. I want 1 strand in the first and last rows of blue, and solid blue in the middle two rows.

- Find the loops per row in 14-17.
 

|         |            |                  |                  |                  |
|---------|------------|------------------|------------------|------------------|
| Row 14: | $2x + 126$ | 15: $2x + 138$ . | 16: $2x + 144$ . | 17: $2x + 156$ . |
|---------|------------|------------------|------------------|------------------|
- Add the Rows’ loop counts.
 

|        |                    |                    |                    |                      |
|--------|--------------------|--------------------|--------------------|----------------------|
| Row 14 | $2x + 126$ loops   |                    |                    |                      |
| Row 15 | $2x + 138$ loops   | $2x + 138$ loops   | $2x + 138$ loops   |                      |
| Row 16 | $2x + 144$ loops   | $2x + 144$ loops   | $2x + 144$ loops   |                      |
| Row 17 | $+ 2x + 156$ loops |                    |                    |                      |
|        | $= 8x + 564$ loops | $+ 4x + 282$ loops | $+ 4x + 282$ loops | $= 16x + 1128$ loops |
- Fill in  $x$ . If Row 1 is 30 loops between double corners, then  $16(30) = 480$  loops.
- Complete the equation:  $16(30) + 1128 = 480 + 1128 = 1608$  loops
- Divide by Braid Gauge per Standard Strip to get the amount needed for the total number of blue loops. My Braid Gauge is 64 loops per braid; divide 1608 loops by 64 loops to get 26 strips total needed for the blue band. (Always round up).
- Multiply by your strip width to find the total inches of length needed in yardage: 26 strips X 1.5” width = 39” of blue fabric yardage to make the outer blue band.

#### 4. Calculations based on Weight (from Karen Levendusky)

This calculation is better for recycled wool, where an exact measurement of the fabric is not possible. These calculations assume that you are working with all the same weight of fabric.

Here is how I figure out how much wool I need. It's not complicated. I braided a length and use these numbers all the time as an approximation.

I use washed Dorr weight wool and use 1-1/2" strips torn from selvage to selvage. One yard of wool has 24 strips of 1-1/2" width.

I braid a length, weigh it, measure the length of the braid, and count the number of loops

I use grams instead of ounces because the numbers are easier to work with, but it is an easy conversion

For example:

Each strip is 58" by 1-1/2"

Weight of each strip is 16.67g - (50 g for all three strands)

I get 40" of braid, and 72 loops

72 loops per 58" = 1.24 loops per inch of strip

40" of braid per 58" of strip = 0.69 inches of braid per inch of strip

If I know the approximate length of braid I need and I have yardage:

40" braid per strip x 24 strips per yard = 960" of braid per yard (of each of the three fabrics)

**So divide the length of braid needed in inches by 960 to get the yards needed (of each fabric)**

If I know the approximate length of braid I need and I have a mix of strips and pieces, it is easier to use weight. I like using weight because I sometimes have rolls of wool strips as well as some fat quarters or other yardage. And It is helpful when working with reclaimed wool pieces to get an approximate number of loops or braid length.

40" braid/16.67g = 2.4" of braid per g of wool

**So divide the length of braid needed in inches by 2.4 to get the weight of wool in grams needed (of each fabric)**

Same if you know the number of loops you need:

72 loops per strip x 24 strips per yard = 1728 loops per yard of wool **so divide the number of loops needed by 1728 to get the yards of each wool needed (you'll need 3)**

Or:

72 loops/16.67g = 4.3 loops per g of each wool **so divide the number of loops needed by 4.3 to get the weight of each wool needed in grams**

Everyone's numbers will be different depending on weight of wool, width of strips, and braiding tension. I just use these numbers each time to get an approximation when I think I might be close to running out or need to buy wool for a specific project. Sandy used to have us preplan our entire rug and calculate how much wool we would need based on number of loops. ---Karen

## 5. Do I Have Enough Wool to Braid One More Row?

This calculation is the easiest one in the whole handout.

In general, braids shrink to  $\frac{2}{3}$  the original strip length.

**If you can wrap a strand around the circumference of your rug  $1\frac{1}{2}$  times, then it is likely that you will be able to braid that strand around the rug.**

(Because  $\frac{2}{3}$  of  $1\frac{1}{2}$  circumferences is 1 circumference).

If you want to be more exact, obtain your Strip Length (61") and your Braid Length (37.5").

Divide the Braid Length by the Strip Length. This will give you your exact shrinkage value from strip length to braid length.  $61/37.5 = 0.61$  ... a little less than the standard value of  $\frac{2}{3}$  or .66. I'd have to braid a little more length than 1.5 circumference to make it around the row.

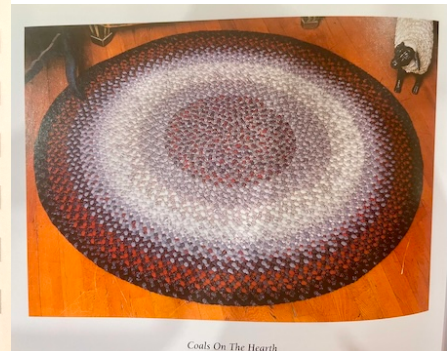
Divide the Strip Length by the Braid Length: 1.63. This tells me that I have to wrap the strip around 1.63 of the circumference of the rug. I'd probably wrap it an extra  $\frac{1}{8}$  of the rug circumference beyond the initial 1.5 wrap.

## Another Example for the Charts that Follow

I want to make the following rug from The Braided Rug Book (2<sup>nd</sup> ed., pink) on page 84, "Coals on the Hearth."

I want to find out how much red I would need for the center. Looking at the book's color plan below, it says that "Med Gray/Red Plaid" is one strand in Rows 1-10.

| Color Plan   |                     |                     |                   |
|--------------|---------------------|---------------------|-------------------|
| Rows 1-10    | Med. Gray/Red Plaid | Med. Gray           | B&W Check         |
| Rows 11-13   | Light Gray          | Med. Gray           | B&W Check         |
| Row 14       | Light Gray          | Med. Gray           | Lighter B&W Check |
| Rows 15 & 16 | Light Gray          | White               | Lighter B&W Check |
| Rows 17-19   | Light Gray          | White               | Silver Gray       |
| Row 20       | Light Gray          | Gray & White Check  | Silver Gray       |
| Row 21       | Med. Gray           | Gray & White Check  | Med. Gray         |
| Rows 22 & 23 | Med. Gray           | Med. Gray/Red Plaid | Dk. Gray          |
| Rows 24-25   | Med. Gray           | B&R Check           | Dk. Gray          |
| Row 26       | Old Red             | B&R Check           | Dk. Gray          |
| Rows 27 & 28 | Old Red             | B&R Check           | Black Plaid       |
| Row 29       | Black               | B&R Check           | Black Plaid       |
| Row 30       | Black               | Black               | Black Plaid       |



Going to the Round Rug Chart, under Continuous Round, I find this at Row 10:

| Row | Braid Pattern | Loops/Row | Sum of Loops |
|-----|---------------|-----------|--------------|
| 10  | (Row 9) + 9   | 92        | 514          |

The key piece of information here is the Sum of Loops: that indicates the sum of the loops in Rows 1-10.

Divide the Sum of Loops by your Braid Gauge (Loop Count/Braided s2s strips).

My loop count is 64 loops/braid.

514 loops/64 equals 8 strips needed in the first 10 rows for one strand of red.

If I wanted to change it to 2 strands of red in the first 10 rows, I'd have to double the strip count to 16 strips.

| <b>Round Rug: Loop Counts Per Row</b> |                             |               |      | <b>Calculations for One Strand</b> |               |      |
|---------------------------------------|-----------------------------|---------------|------|------------------------------------|---------------|------|
|                                       | <b>Continuous Round Rug</b> |               |      | <b>Butted Round Rug</b>            |               |      |
| <b>Row</b>                            | Braid Pattern               | Loops per Row | Sum  | Braid Pattern                      | Loops per Row | Sum  |
| <b>1</b>                              | 5 DC                        | 10            | 10   | 9-loop Center                      | 9             | 9    |
| <b>2</b>                              | (Row 1) + 10                | 20            | 30   | (Row 1) + 9                        | 18            | 27   |
| <b>3</b>                              | (Row 2) + 9                 | 29            | 59   | (Row 2) + 9                        | 27            | 54   |
| <b>4</b>                              | (Row 3) + 9                 | 38            | 97   | (Row 3) + 9                        | 36            | 90   |
| <b>5</b>                              | (Row 4) + 9                 | 47            | 144  | (Row 4) + 9                        | 45            | 135  |
| <b>6</b>                              | (Row 5) + 9                 | 56            | 200  | (Row 5) + 9                        | 54            | 189  |
| <b>7</b>                              | (Row 6) + 9                 | 65            | 265  | (Row 6) + 9                        | 63            | 252  |
| <b>8</b>                              | (Row 7) + 9                 | 74            | 339  | (Row 7) + 9                        | 72            | 324  |
| <b>9</b>                              | (Row 8) + 9                 | 83            | 422  | (Row 8) + 9                        | 81            | 405  |
| <b>10</b>                             | (Row 9) + 9                 | 92            | 514  | (Row 9) + 9                        | 90            | 495  |
| <b>11</b>                             | (Row 10) + 9                | 101           | 615  | (Row 10) + 9                       | 99            | 594  |
| <b>12</b>                             | (Row 11) + 9                | 110           | 725  | (Row 11) + 9                       | 108           | 702  |
| <b>13</b>                             | (Row 12) + 9                | 119           | 844  | (Row 12) + 9                       | 117           | 819  |
| <b>14</b>                             | (Row 13) + 9                | 128           | 972  | (Row 13) + 9                       | 126           | 945  |
| <b>15</b>                             | (Row 14) + 9                | 137           | 1109 | (Row 14) + 9                       | 135           | 1080 |
| <b>16</b>                             | (Row 15) + 9                | 146           | 1255 | (Row 15) + 9                       | 144           | 1224 |
| <b>17</b>                             | (Row 16) + 9                | 155           | 1410 | (Row 16) + 9                       | 153           | 1377 |
| <b>18</b>                             | (Row 17) + 9                | 164           | 1574 | (Row 17) + 9                       | 162           | 1539 |
| <b>19</b>                             | (Row 18) + 9                | 173           | 1747 | (Row 18) + 9                       | 171           | 1710 |
| <b>20</b>                             | (Row 19) + 9                | 182           | 1929 | (Row 19) + 9                       | 180           | 1890 |
|                                       |                             |               |      |                                    |               |      |
| Tot                                   |                             | 1929          |      |                                    | 1890          |      |

| <b>Square Rug: Loop Counts Per Row</b> |                                        |               |      | <b>Calculations for One Strand</b> |               |      |
|----------------------------------------|----------------------------------------|---------------|------|------------------------------------|---------------|------|
|                                        | <b>Continuous Square Rug</b>           |               |      | <b>Butted Square Rug</b>           |               |      |
| Row                                    | Braid Pattern                          | Loops per Row | Sum  | Braid Pattern                      | Loops per Row | Sum  |
| 1                                      | LRL                                    | 1             | 1    | 8-loop Center                      | 8             | 8    |
| 2                                      | RRRL, RRRL, 1, RRRL, 1, RRRL, 3        | 17            | 18   | (RRRL,2) X 4                       | 20            | 28   |
| 3                                      | RRRL, 3, RRRL, 4, RRRL, 4, RRRL, 5     | 28            | 46   | (RRRL,5) X 4                       | 32            | 60   |
| 4                                      | RRRL, 6, RRRL, 7, RRRL, 7, RRRL, 9     | 41            | 87   | (RRRL,8) X 4                       | 44            | 104  |
| 5                                      | RRRL, 9, RRRL, 10, RRRL, 10, RRRL, 11  | 52            | 139  | (RRRL,11) X 4                      | 56            | 160  |
| 6                                      | RRRL, 12, RRRL, 13, RRRL, 13, RRRL, 15 | 65            | 204  | (RRRL,14) X 4                      | 68            | 228  |
| 7                                      | RRRL, 15, RRRL, 16, RRRL, 16, RRRL, 17 | 76            | 280  | (RRRL,17) X 4                      | 80            | 308  |
| 8                                      | RRRL, 18, RRRL, 19, RRRL, 19, RRRL, 21 | 89            | 369  | (RRRL,20) X 4                      | 92            | 400  |
| 9                                      | RRRL, 21, RRRL, 22, RRRL, 22, RRRL, 23 | 100           | 469  | (RRRL,23) X 4                      | 104           | 504  |
| 10                                     | RRRL, 24, RRRL, 25, RRRL, 25, RRRL, 27 | 113           | 582  | (RRRL,26) X 4                      | 116           | 620  |
| 11                                     | RRRL, 27, RRRL, 28, RRRL, 28, RRRL, 29 | 124           | 706  | (RRRL,29) X 4                      | 128           | 748  |
| 12                                     | RRRL, 30, RRRL, 31, RRRL, 31, RRRL, 33 | 137           | 843  | (RRRL,32) X 4                      | 140           | 888  |
| 13                                     | RRRL, 33, RRRL, 34, RRRL, 34, RRRL, 35 | 148           | 991  | (RRRL,35) X 4                      | 152           | 1040 |
| 14                                     | RRRL, 36, RRRL, 37, RRRL, 37, RRRL, 39 | 161           | 1152 | (RRRL,38) X 4                      | 164           | 1204 |
| 15                                     | RRRL, 39, RRRL, 40, RRRL, 40, RRRL, 41 | 172           | 1324 | (RRRL,41) X 4                      | 176           | 1380 |
| 16                                     | RRRL, 42, RRRL, 43, RRRL, 43, RRRL, 45 | 185           | 1509 | (RRRL,44) X 4                      | 188           | 1568 |
| 17                                     | RRRL, 45, RRRL, 46, RRRL, 46, RRRL, 47 | 196           | 1705 | (RRRL,47) X 4                      | 200           | 1768 |
| 18                                     | RRRL, 48, RRRL, 49, RRRL, 49, RRRL, 51 | 209           | 1914 | (RRRL,50) X 4                      | 212           | 1980 |
| 19                                     | RRRL, 51, RRRL, 52, RRRL, 52, RRRL, 53 | 220           | 2134 | (RRRL,53) X 4                      | 224           | 2204 |
| 20                                     | RRRL, 54, RRRL, 55, RRRL, 55, RRRL, 57 | 233           | 2367 | (RRRL,56) X 4                      | 236           | 2440 |
|                                        |                                        |               |      |                                    |               |      |
| Tot                                    |                                        | 2367          |      |                                    | 2440          |      |

**Oval Rug: Loop Counts Per Row, where “x” is the number of loops between double corners on one side of Row 1.**  
**Calculations are for One Strand**

| Row       | Continuous Oval Rug                           |               |              | Butted Oval Rug                   |               |              |
|-----------|-----------------------------------------------|---------------|--------------|-----------------------------------|---------------|--------------|
|           | Braid Pattern & Increases                     | Loops per Row | Sum          | Braid Pattern & Increases         | Loops per Row | Sum          |
| <b>1</b>  | 2X + 4 + 4 (one set of DC loops, + incr. @ T) | $2x + 8$      | $2x + 8$     | 2X + 4 + 4 (two sets of DC loops) | $2x + 8$      | $2x + 8$     |
| <b>2</b>  | (Row 1) + 5 + 6                               | $2x + 19$     | $4x + 27$    | (Row 1) + 5 + 5                   | $2x + 18$     | $4x + 26$    |
| <b>3</b>  | (Row 2) + 6 + 6                               | $2x + 31$     | $6x + 58$    | (Row 2) + 6 + 6                   | $2x + 30$     | $6x + 56$    |
| <b>4</b>  | (Row 3) + 3 + 3                               | $2x + 37$     | $8x + 95$    | (Row 3) + 3 + 3                   | $2x + 36$     | $8x + 92$    |
| <b>5</b>  | (Row 4) + 6 + 6                               | $2x + 49$     | $10x + 144$  | (Row 4) + 6 + 6                   | $2x + 48$     | $10x + 140$  |
| <b>6</b>  | (Row 5) + 3 + 3                               | $2x + 55$     | $12x + 199$  | (Row 5) + 3 + 3                   | $2x + 54$     | $12x + 194$  |
| <b>7</b>  | (Row 6) + 6 + 6                               | $2x + 67$     | $14x + 266$  | (Row 6) + 6 + 6                   | $2x + 66$     | $14x + 260$  |
| <b>8</b>  | (Row 7) + 3 + 3                               | $2x + 73$     | $16x + 339$  | (Row 7) + 3 + 3                   | $2x + 72$     | $16x + 332$  |
| <b>9</b>  | (Row 8) + 6 + 6                               | $2x + 85$     | $18x + 424$  | (Row 8) + 6 + 6                   | $2x + 84$     | $18x + 416$  |
| <b>10</b> | (Row 9) + 3 + 3                               | $2x + 91$     | $20x + 515$  | (Row 9) + 3 + 3                   | $2x + 90$     | $20x + 506$  |
| <b>11</b> | (Row 10) + 6 + 6                              | $2x + 103$    | $22x + 618$  | (Row 10) + 6 + 6                  | $2x + 102$    | $22x + 608$  |
| <b>12</b> | (Row 11) + 3 + 3                              | $2x + 109$    | $24x + 727$  | (Row 11) + 3 + 3                  | $2x + 108$    | $24x + 716$  |
| <b>13</b> | (Row 12) + 6 + 6                              | $2x + 121$    | $26x + 848$  | (Row 12) + 6 + 6                  | $2x + 120$    | $26x + 836$  |
| <b>14</b> | (Row 13) + 3 + 3                              | $2x + 127$    | $28x + 975$  | (Row 13) + 3 + 3                  | $2x + 126$    | $28x + 962$  |
| <b>15</b> | (Row 14) + 6 + 6                              | $2x + 139$    | $30x + 1114$ | (Row 14) + 6 + 6                  | $2x + 138$    | $30x + 1100$ |
| <b>16</b> | (Row 15) + 3 + 3                              | $2x + 145$    | $32x + 1259$ | (Row 15) + 3 + 3                  | $2x + 144$    | $32x + 1244$ |
| <b>17</b> | (Row 16) + 6 + 6                              | $2x + 157$    | $34x + 1416$ | (Row 16) + 6 + 6                  | $2x + 156$    | $34x + 1400$ |
| <b>18</b> | (Row 17) + 3 + 3                              | $2x + 163$    | $36x + 1579$ | (Row 17) + 3 + 3                  | $2x + 162$    | $36x + 1562$ |
| <b>19</b> | (Row 18) + 6 + 6                              | $2x + 175$    | $38x + 1754$ | (Row 18) + 6 + 6                  | $2x + 174$    | $38x + 1736$ |
| <b>20</b> | (Row 19) + 3 + 3                              | $2x + 181$    | $40x + 1935$ | (Row 19) + 3 + 3                  | $2x + 180$    | $40x + 1916$ |
|           |                                               |               |              |                                   |               |              |
|           |                                               |               |              |                                   |               |              |