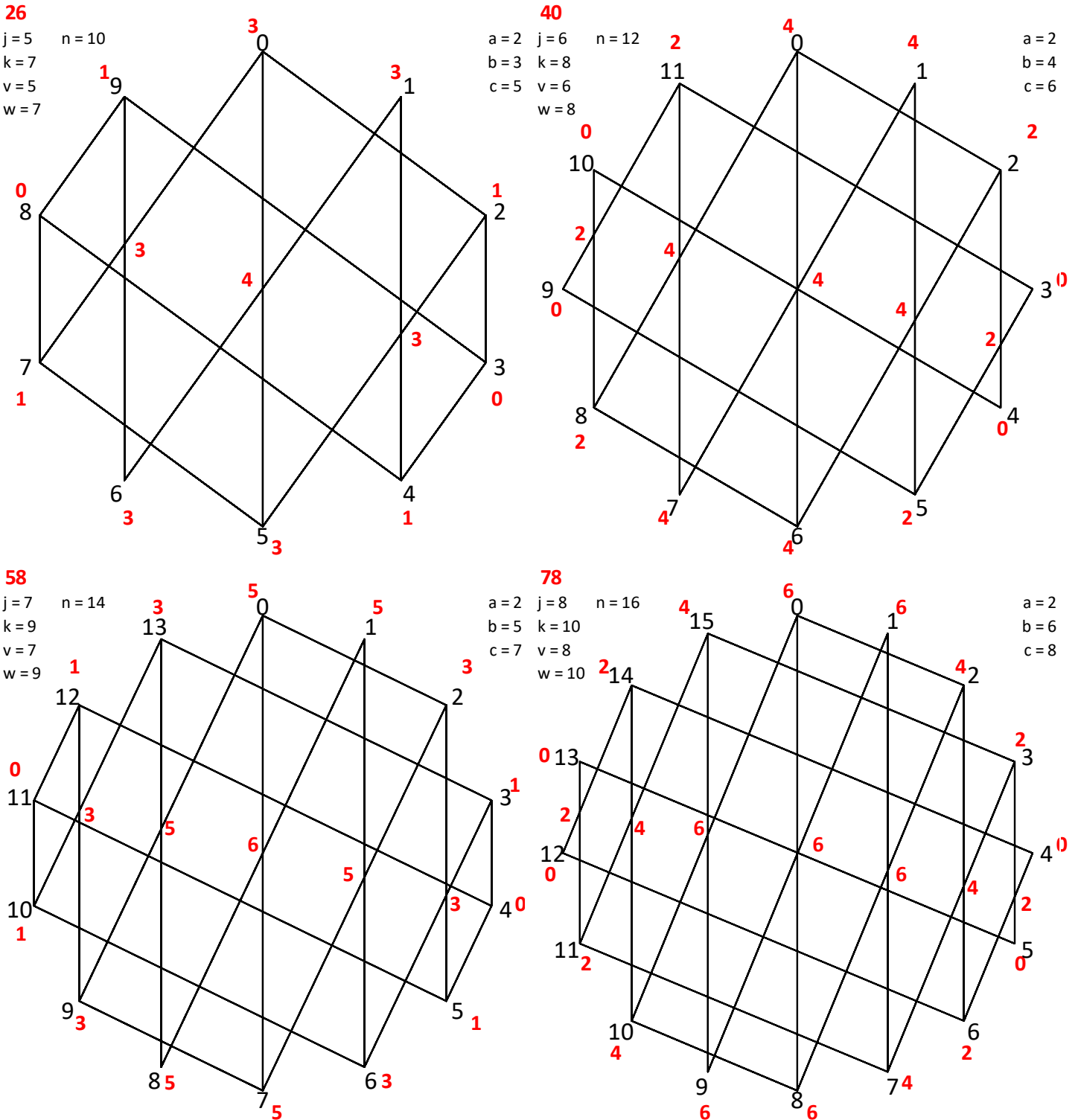


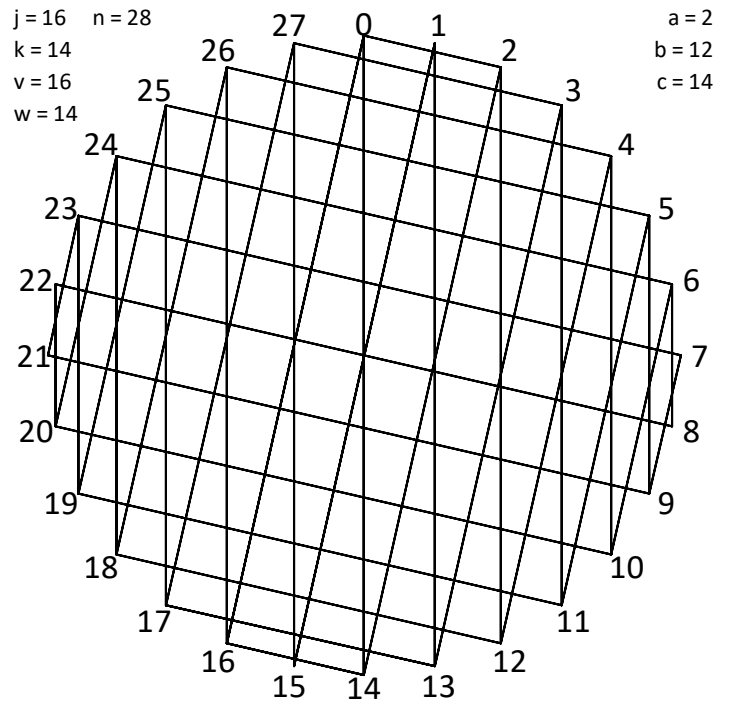
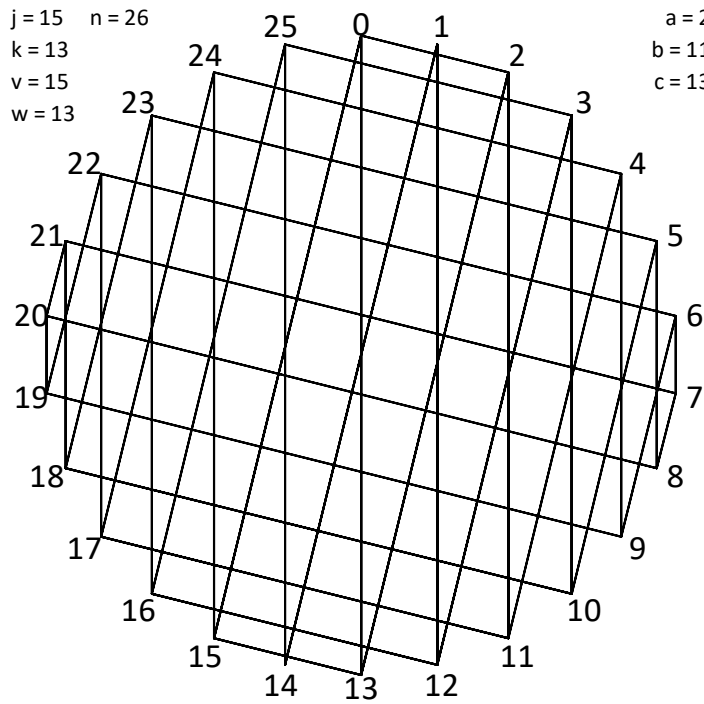
A Partially Worked Challenge Question, Second Sharpest Scalene Right Triangles

The equations used in the [last section](#) to create second sharpest odd acute scalene triangles produce second sharpest scalene right triangles when n is even and larger than 8 ($n = 8$ produces isosceles right triangles and for $n = 6$, the smallest angle spans a single vertex, and the image involves 30-60-90 triangles). The first four second sharpest scalene right triangles images are shown below in the marked-up form outlined in the previous section.



Portraying n . The apex counts in the images above make clear that odd and even multiples of 2 use different counting rules, so it makes sense to consider $n = 4k+2$ and $n = 4k$ separately. Start with $k = 2$ for 10, and $k = 3$ for 12.

Challenge Question. Use the above images together with the patterns learned in the last chapter and organized together in the [compendium](#) to obtain general formulas for the total number of triangles, $T(n)$, as $T(n = 4k+2)$ and $T(n = 4k)$.



Hint. Your formulas should verify that there are $T(26) = 226$ given $k = 6$, and $T(28) = 264$ given $k = 7$ total triangles in these images.