Ting Kau Bridge is the longest 3-tower cable-stayed bridge in the world. The 1177m-long cable-stayed bridge is supported by three single-legged towers and 4 planes of stay cables radiating from the top of the towers. This infographic work was inspired by the many triangles in the spectacular side view of the Ting Kau Bridge.

Stewart's formula relates the lengths of three sides and a Cevian of a triangle which is a line intersecting one of the vertices and the side opposite to that vertex. If the Cevian bisects the opposite site, then Cevian is a median. Referring to the triangle in my infographic work, in DPQR, PS is a median and

$$PQ^2 + PR^2 = 2PS^2 + 2QS^2$$

If we extend the base to another point T outside the triangle so that RT = QS = SR, then PR is a median of DPST and hence

$$PS^2 + PT^2 = 2PR^2 + 2SR^2.$$

Since QS = SR, by eliminating QS^2 and SR^2 in the above two equations, we can obtain

$$PQ^2 + PR^2 - PS^2 - PT^2 = 2PS^2 - 2PR^2$$

$$PQ^2 - 3PS^2 + 3PR^2 - PT^2 = 0.$$

If we repeat further extend QT to U such that UT = RT = QS = SR, using similar method, we can obtain

$$PQ^2 - 4PS^2 + 6PR^2 - 4PT^2 + PU^2 = 0.$$

As I work out more equations, one thing to catch my attention is the coefficients of the terms in these equations. They are binomial coefficients in Pascal's Triangle (the coefficients of the terms in non-negative integral powers of binomial expansions). This is the first time I notice the footprints of binomial coefficients in geometry. This is the reason why I develop this infographic work to share my joyful experience of seeing the connection between mathematics and the world with others.