

In what respect does the triangle, formed by joining the free extremities of two conterminous sides of a square by a straight line, differ from the triangle similarly formed by two conterminous sides of a rectangle and the diagonal joining their free extremities? In the triangles that we have been discussing, what has been the magnitude of the angle contained by the two sides that we have been comparing with the third side? Would the two sides have been together longer than the third side if the contained angle had been an acute angle? An obtuse angle?

James may draw any triangle on the black-board and we will call it the triangle ABC , these letters being put at the three angles. Now, are AB and BC greater than AC ? AC and CB than AB ? AC and BC than AB ? Yes, it is true that AB and BC are greater than AC , that BC and CA are greater than BA , and that CA and AB are greater than CB , but it is clumsily said: Can any boy make the same statements about this triangle in a more summary way? Yes, any two sides of the triangle ABC are together greater than the third. Now, might a similar statement be made about any triangle? About all triangles? Very well, state the truth generally.

But to see the truth in a general way and to state it correctly are not sufficient for our purpose. We must prove the truth; we must compare the two sides with the one side and show that together they are greater. Here the suggestions of the teacher must proceed more slowly; longer time must be given to the pupils to profit by each suggestion. Thus, how can you construct a line equal to the sum of the two lines? Can you do this by adding to one of the two sides? Can you so do this that the part added on shall be conterminous with the side to which it is equal? About what kind of figure do you know most from your previous studies? Perhaps then, it would be well to make the nondescript figure you now have into a triangle. This being done the figure of course is complete.

Two suggestions should be sufficient to enable pupils to discover the proof for themselves. First, compare the magnitudes of the angles in your figure, so far as they are necessarily determined by the construction. Secondly, see if the relative magnitudes of the angles determine the relative magnitudes of any sides.

Now, says the teacher to his class, deeply interested in