

$$= 6 / 2 = 3$$

Thus , three coordinate planes (xy @-@ plane , xz @-@ plane , and yz @-@ plane) are required to capture the necessary projections for calculating the area of the set . If the set contained one @-@ dimensional parallel line segments instead , three coordinate axes (x , y , and z) , rather than planes , would be needed to capture the projections for calculating the length of the set .

== == Applied to sets containing a single object == ==

This generalized formula can be applied in the simplest case to a single one @-@ dimensional object , a line segment , in two @-@ dimensional space . The animation illustrates this case with a line segment shown in blue and its projections onto the x- and y- axes shown in green . The lengths of the projections squared and added together are equal to the length of the original line segment squared . This produces the familiar Pythagorean theorem formula :
<formula>