

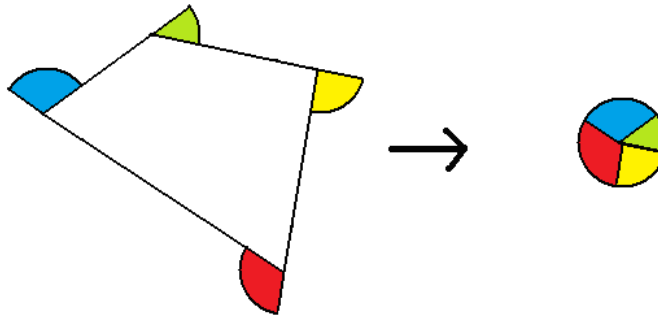
# MORE WITHOUT WORDS

*Mathematical Puzzles to Confound and Delight*

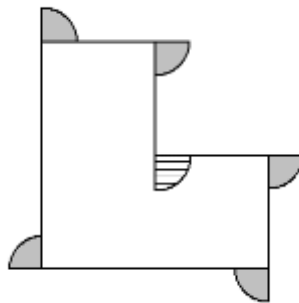


## MWW 19: SOLUTION

As one walks around a polygon, making a pivot at each corner, one completes a full turn of rotation. This means that each of the individual pivot angles must sum to one full turn.



The number of sides of the polygon is irrelevant: pivot angles must add to one full turn each and every time. This is true even if some of the angles are inside the polygon and so swivel in the opposite direction to “cancel” some portion of turning: the total final net effect is still one full turn.



As a circle can be approximated by a 100-sided polygon, a 1000-sided polygon, a million-sided polygon, and so on, each with exterior angles amounting to one full turn, the shaded area around the circle also amounts to one full turn.

The answer to each and every picture in this puzzle is the same. It is:

