

What Fraction is Shaded?

The aim of these puzzles is to identify the shaded portion of the whole figure as a fraction of its total area. All of these puzzles are created using regular shapes. Any additional information required to solve each puzzle is indicated in the text below the figure.

#1 A parallelogram is inscribed in a square such that two vertices are at the midpoints of opposite sides as shown.

What fraction of the square is shaded?

d d d d d d d
 g g d d d d d
 g g d d d d d

#2

The shaded triangle is constructed using the midpoints and a vertex of an equilateral triangle as shown. What fraction of the equilateral triangle is shaded?

Solutions and Answers

#1

The eight triangles have the same base (a quarter of a side) and same altitude (side of the square). So they all have the same area. The shaded area represents one eighth of the square.

#2

The rectangle has the same area as these four grey rhombuses. There are two of each kind in grey and five of each kind in the decagon.