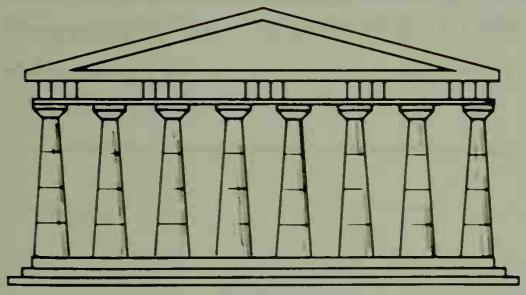
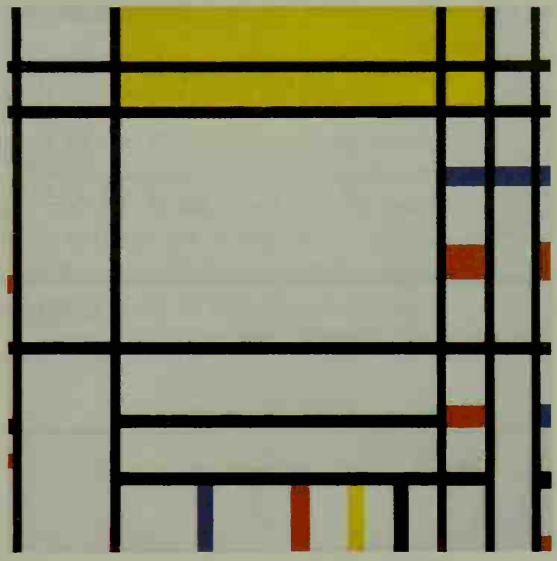
♦ Calculator Key-In

Before the pediment on top of the Parthenon in Athens was destroyed, the front of the building fit almost exactly into a golden rectangle. In a **golden rectangle,** the length l and width w satisfy the equation $\frac{l}{w} = \frac{l + w}{l}$. The ratio $\frac{l}{w}$ is called the **golden ratio.**

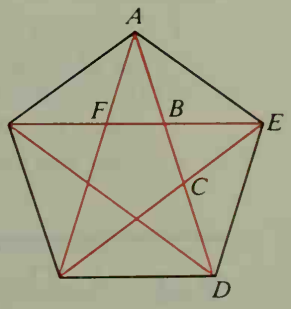




Over the centuries, artists and architects have found the golden rectangle to be especially pleasing to the eye. How many golden rectangles can you find in the painting by Piet Mondrian (1872–1944) that is shown?

Exercises

1. A regular pentagon is shown. It happens to be true that $\frac{AD}{AC}$, $\frac{AC}{AB}$, and $\frac{AB}{BC}$ all equal the golden ratio. Measure the appropriate lengths to the nearest millimeter and compute the ratios with a calculator.



2. From the equation $\frac{l}{w} = \frac{l + w}{l}$ it can be shown that the numerical value of $\frac{l}{w}$ is $\frac{1 + \sqrt{5}}{2}$. Express the value of $\frac{l}{w}$, the golden ratio, as a decimal.