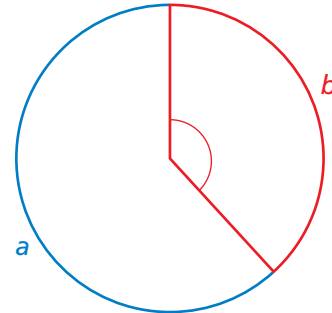


▶ Extending Concepts

Golden Angle In Exercises 21 and 22, use the Internet and the information below.

In the figure, the golden angle is the angle subtended by the smaller red arc.

21. What is the measure of the golden angle in degrees?
Explain why this angle is called the golden angle.
22. Describe how the golden angle is related to phyllotaxis.



Golden Triangle In Exercises 23–26, use the Internet and the information below.

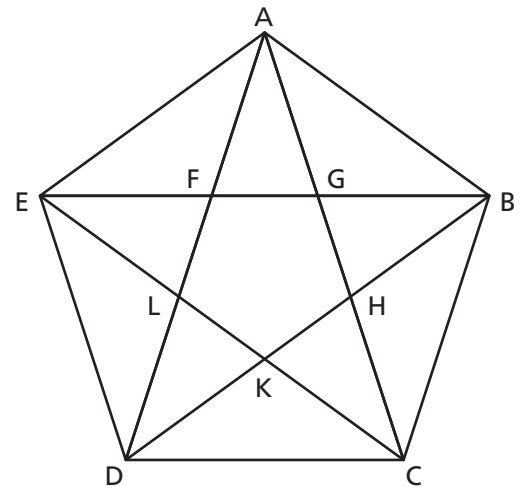
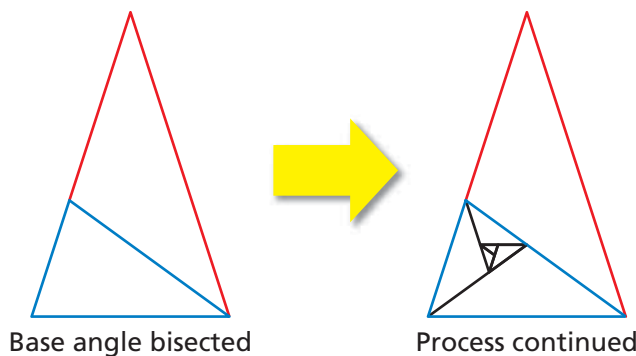
A golden triangle is an isosceles triangle in which the ratio of the length of one of the longer sides to the length of the shorter side is the golden ratio. The base angles are 72° each, and the smaller angle is 36° .

23. Does a triangle with the following side lengths approximate a golden triangle? Explain.

a. 8 ft, 8 ft, 5 ft	b. 21 cm, 13 cm, 18 cm
c. 55 m, 34 m, 55 m	d. 10 in., 14 in., 14 in.



24. When a base angle of a golden triangle is bisected, the angle bisector divides the opposite side in a golden ratio and forms two smaller isosceles triangles. The blue triangle (shown below) that is created from the bisection is a golden triangle. This process can be continued indefinitely, creating smaller and smaller golden triangles. Use the bisection process of a golden triangle, a compass, and a ruler to draw the Fibonacci spiral.



25. The figure at the right is a pentagon with all its diagonals drawn. How are the diagonals and the sides related to the golden ratio?
26. How many golden triangles can you find in the figure at the right?