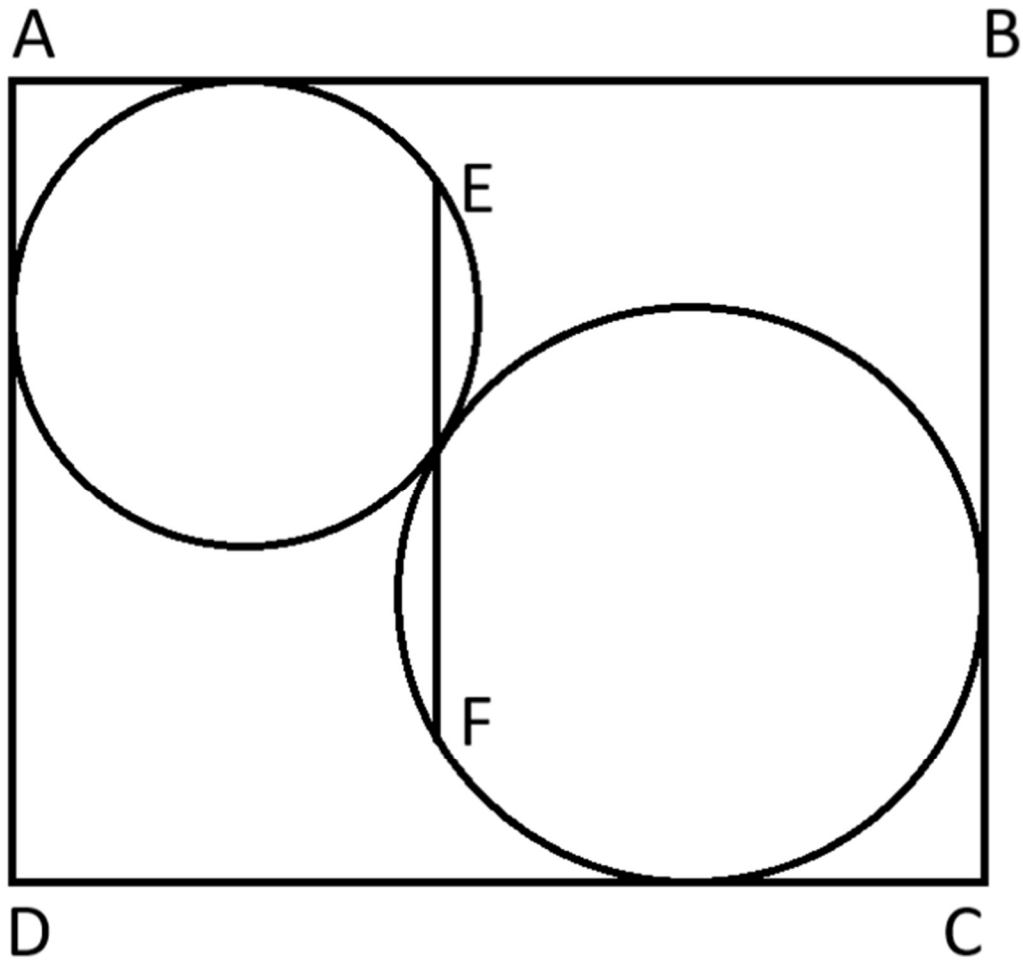


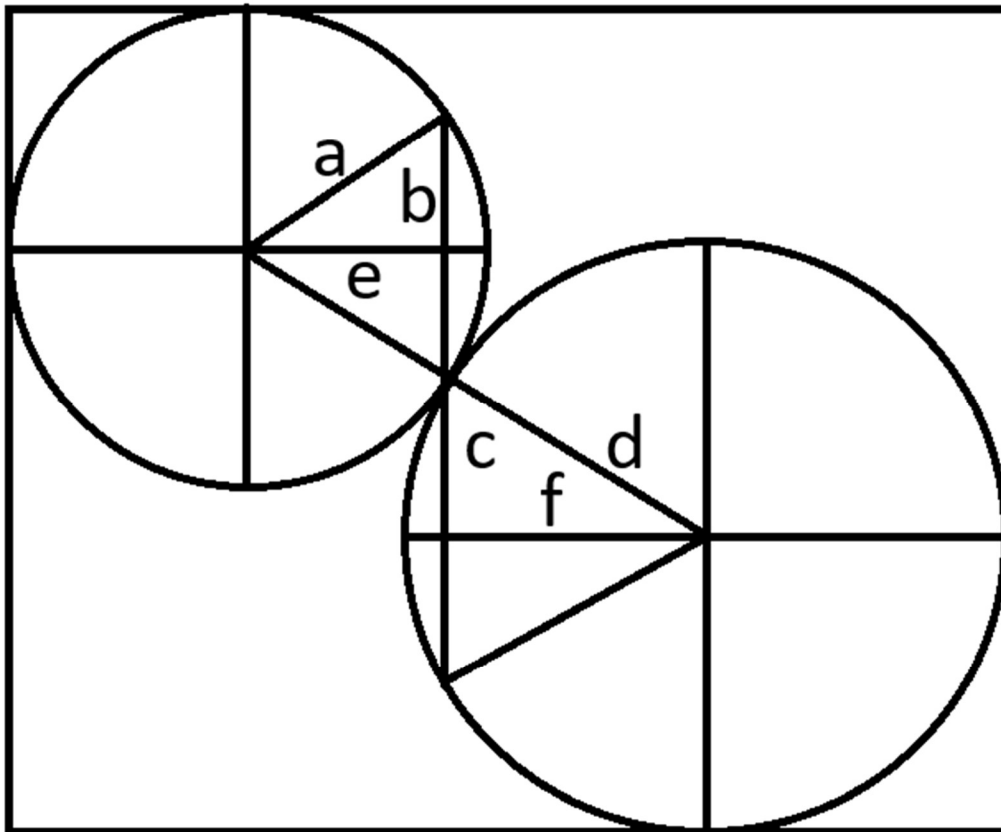
Question: In the figure below, ABCD is a rectangle of height 81. EF has length 56 and is parallel to AD. What is the width of the rectangle?



Answer: 98

Solution:

Let's use the following diagram for the solution:



We're given:

$$a+b+c+d = 81$$

$$2b + 2c = 56$$

It follows that

$$b + c = 28$$

and

$$a+d = 81-(b+c) = 81-28 = 53$$

From the Pythagorean formula:

$$(b+c)^2 + (e+f)^2 = (a+d)^2$$

$$28^2 + (e+f)^2 = 53^2$$

$$(e+f)^2 = 2809 - 784 = 2025$$

$$e+f = 45$$

The width of the rectangle is:

$$(a+d) + (e+f) =$$

$$53 + 45 = 98$$

This puzzle was taken from the Nov/Dec 2024 issue of the Mensa Bulletin.