Given: EA and EC are common external tangents of G and B. $AF = 55, DG = 9, EG = 41$. What is the measure of CE?

Solution
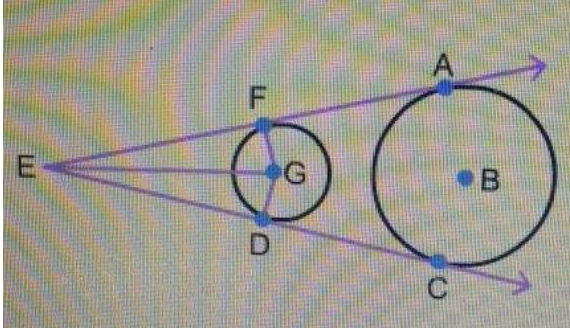
We can see that $CE = AE$ and $FG = DG$ (radius of small circle).

According to Pythagorean Theorem:

$$EF = \sqrt{EG^2 - FG^2} = \sqrt{EG^2 - DG^2}.$$

The measure of CE is

$$CE = AE = AF + EF = AF + \sqrt{EG^2 - DG^2} = 55 + \sqrt{41^2 - 9^2} = 95.$$

Answer: 95.