It's time again for another GMAT Challenge Question, and this one features a favorite GMAT theme: you're provided no actual numbers and need to use your conceptual knowledge to determine a proportional relationship. Please post your answers in the comments field, and we'll be back later today with a detailed solution:

Circle A is perfectly inscribed in a square, and the square is perfectly inscribed within circle B. The area of circle B is what percent greater than the area of circle A?

(A)   50%

(B)   100%

(C)   150%

(D) 200%

(E)   250%

UPDATE: Solution! One important note about inscribed shapes is that both squares and circles are perfectly symmetrical, meaning that if you know one length (radius, diameter, circumference, area; or side, diagonal, area, perimeter) you can solve for everything else.

In this case, is we call the radius of the smaller circle r, then the diameter of that circle is 2r and the area is pi*r^2.

If that circle is perfectly inscribed inside a square, then that means that the length of the diameter will perfectly fit within the boundaries of the square, making the side of the square also equal to 2r.

Now, if a circle is perfectly inscribed around that square, then the circle will hit each corner exactly once, making the diameter of the larger circle equal to the diagonal of the square. Using what we know about squares (or using Pythagorean Theorem), we know that the diagonal is equal to the side * √2, making the diameter of the larger circle equal to 2r*√2, and the radius of the larger circle then equal to half that: r*√2.

The area of the larger circle is the pi*(r*√2)^2, or 2*pi*r^2. Therefore, the area of the larger circle (2*pi*r^2) is twice that of the smaller circle (pi*r^2). But keep in mind that you must answer the right question! The question asks "how much GREATER is the larger circle than the smaller" not "the larger circle is what percent OF the smaller". To get to twice the size, we only ADD 100%, so the correct answer is B.